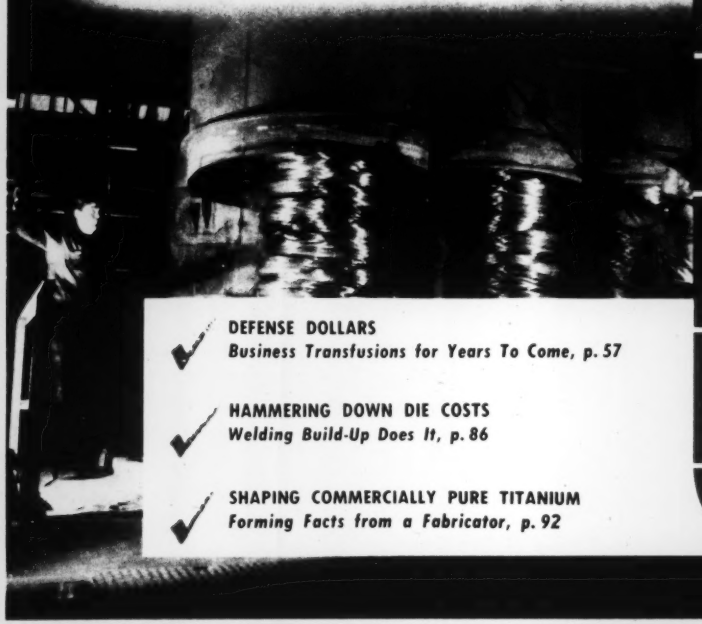
SEPTEMBER 8, 1952

STEEL

THE WEEKLY MAGAZINE OF METALWORKING

A MORE SENSITIVE BAROMETER OF STEEL PRICES



SEPTEMBER

NEW WEEK INDEX START WITH THIS ISSUE

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130.8

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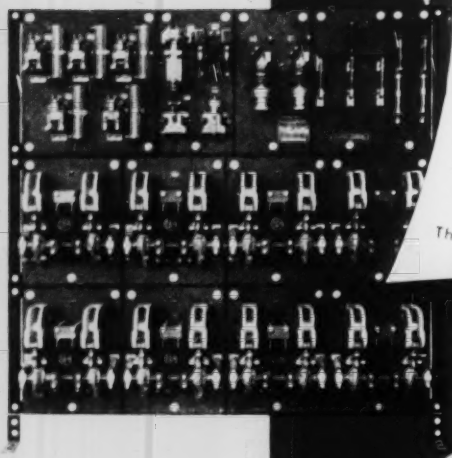


LOOK for these NAMES when buying Motor Control

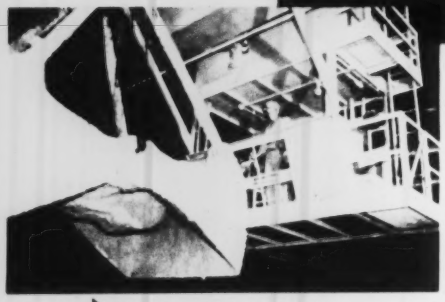
1 LINE-ARC Contactors
2 TIME-CURRENT Acceleration (D-c)
3 FREQUENCY RELAY Acceleration (A-c)
4 WRIGHT CIRCUIT Hoist Control (D-c)
5 YOUNGSTOWN Hoist Limit Stops
6 TYPE WB Brakes
7 CAM Master Switches
8 MANUAL-MAGNETIC Disconnect Switches
9 CONTRA-TORQUE Hoist Control (A-c)
10 TAB-WELD Resistors

These FUNCTIONAL NAMES Speak for Themselves

CONTRA-TORQUE
for A-c Hoists

Better Speed Selection

Improved Output



Bucket crane in fertilizer plant.

Magnet gantry crane serving scrap baler installation.

REDUCED torque values for better lowering speeds, suited to the load and ability to start lowering on *any* speed point of the master switch, provide great flexibility, permitting increased production.

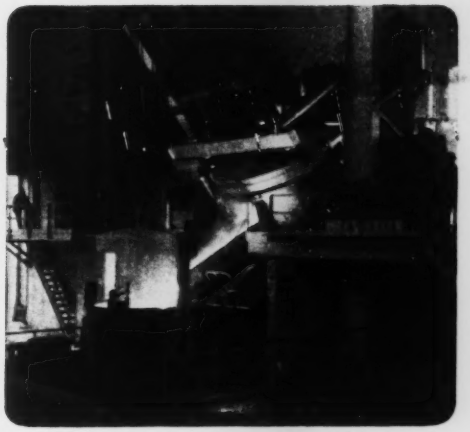
Operators are quick to take advantage of the characteristics of EC&M CONTRA-TORQUE Controllers: slow speeds to land a load carefully — using the last point for fast lowering — decelerating the load on intermediate points or using any of these points to release the brake and start down.

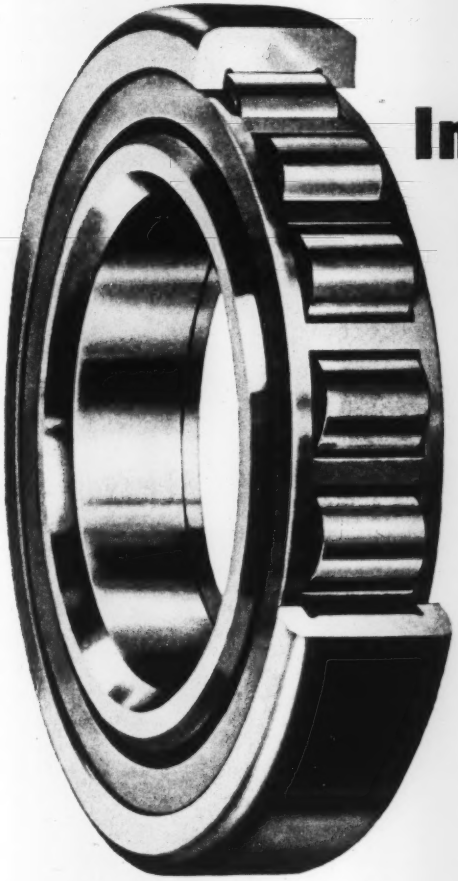
Safeguarding the operation at all times are EC&M FREQUENCY RELAYS. If a heavy load speeds up on a weak torque point, these relays automatically switch connections to a strong torque point, checking the motor speed and allowing operation to continue safely.

For bucket and magnet hoists, and similar cranes with permanently loaded hooks, specify EC&M CONTRA-TORQUE Control.

THE ELECTRIC CONTROLLER & MFG. CO.
2698 EAST 79TH STREET • CLEVELAND 4, OHIO

Electric Furnace Bearing Steel





Internally Clean... Accurately Rated

Getting rid of non-metallic inclusions is probably the toughest job that confronts any manufacturer of high-grade bearing steels. At Bethlehem we are able to hold inclusions to the minimum by using modern melting methods combined with rigid metallurgical control. And we test every heat at the critical stages of production. As a result of this painstaking care, Bethlehem bearing steels can meet the stringent requirements of the anti-friction bearing industry.

But just as important as our ability to turn out sound steel is our ability to rate or evaluate every heat according to the customers' standards. These standards often vary according to the sizes and bearing components to be manufactured.

Preliminary tests for inclusion ratings are taken by our mill technicians as soon as the billets are rolled. The extent and coverage of this examination is governed by the end use of the finished bearing.

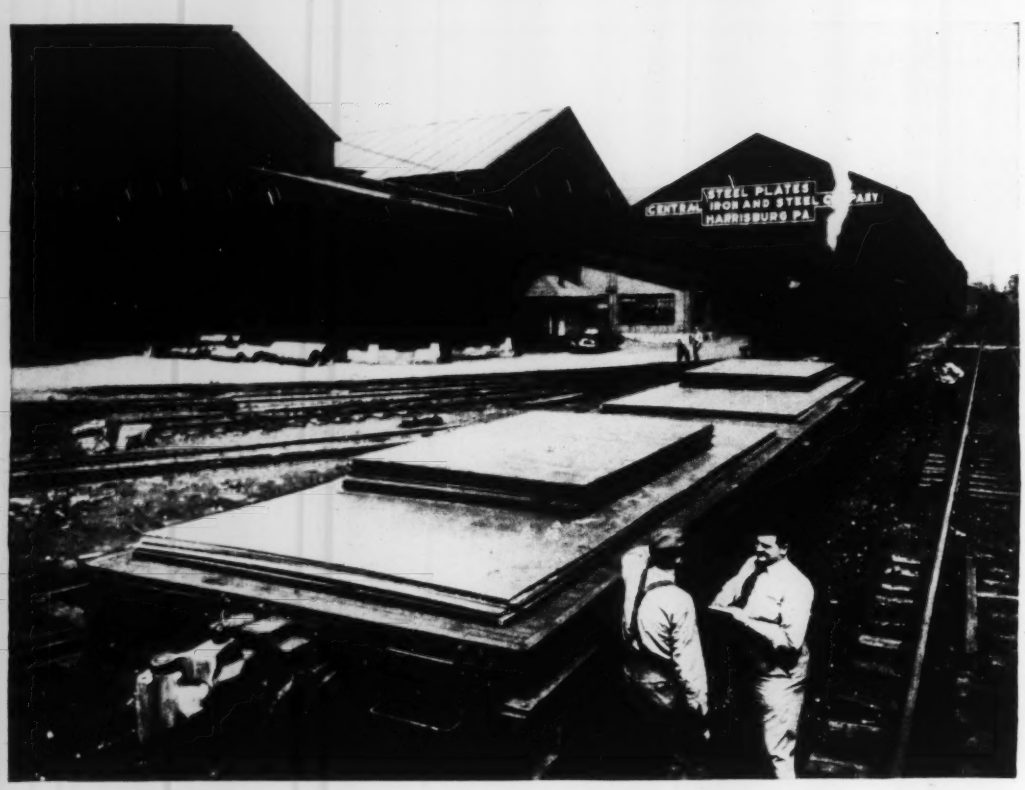
Obviously, any final inspection rating which will be comparative can be realized only where there is a complete understanding between our metallurgists and the customer. Whether you use the 52100 types or low-carbon alloy carburized grades, we will be glad to give you further information on methods of rating, as well as analyses and properties.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor*—Bethlehem Steel Export Corporation

BETHLEHEM ALLOY STEELS

BETHLEHEM STEEL



"Blue plate special" for industry

Here's a tempting, mouth-watering sight to every executive in a metal-working industry today.

Steel plate . . . the fine type made at Barium's Central Iron and Steel Company . . . ready for shipment.

You'll do better ordering steel plate from Central, as well as Central stampings and fabrications.

Why? Because Central is part of Barium Steel Corporation . . . a team of companies supplying industry with steel in many forms, ready to work as a self-contained unit to speed urgently-needed orders.

Think of Barium as a single source for steel, controlling quality from blast furnace to finished product, and you'll want to do business with Barium. Address your needs in steel plate to Central Iron and Steel Company at 25 Broadway, New York City.

Barium

A coordinated effort of 15 companies working in steel

MILL PRODUCTS • SHAPES TO ORDER • END PRODUCTS

BOLTS
Bayonne Bolt Corporation

STEEL PLATE
Central Iron and Steel Company

PIG IRON
Chester Blast Furnace

CRANES AND HOISTS
Clyde Iron Works, Inc.

SPRINGS
Cuyahoga Spring Company

BOLTS AND NUTS
Ewe Bolt and Nut Company

METAL STAMPINGS
Geometric Stamping Company

DROP FORGINGS
Globe Forge Inc.

HEAVY FLAT DIE FORGINGS
Industrial Forge and Steel, Inc.

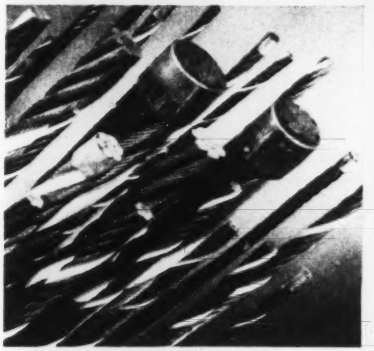
AIRCRAFT ENGINES AND PRECISION ASSEMBLIES
Jacobs Aircraft Engine Company

MARINE DIESEL AND GASOLINE ENGINES
Kermath Manufacturing Company
Kermath Limited (Canada)

STRUCTURAL SHAPES AND STEEL FABRICATIONS
Phoenix Bridge Company
Phoenix Iron and Steel Company

BARGES AND TUGS
Wiley Manufacturing Company

MACWHYTE



PREformed . . . Internally Lubricated

WIRE ROPE

for all equipment

From Macwhyte's complete line of a thousand and one sizes and types you get rope best suited to your equipment, designed, PREformed, and internally lubricated to provide long, safe service. (Catalog G-15.)

Wire Rope

SLINGS

for lifting and moving materials and equipment in production or maintenance.

There are hundreds of types and sizes of Macwhyte Flat-Braided, Round-Braided, Single-Part, and Grommet Slings. All are custom made in length, capacity, and flexibility to meet your needs. (Catalog S-8.)

Wire Rope

ASSEMBLIES

for machine parts, controls, and operating devices.

Macwhyte Safe-Lock wire rope assemblies are made to order in length, strength, and flexibility desired. Terminals are permanently attached to one or both ends. There are many standard types. (Catalog 5201.)

Macwhyte Company, 2912 Fourteenth Avenue, Kenosha, Wis. Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel Wire Rope and Wire Rope Assemblies. Mill depots: New York • Pittsburgh • Chicago • St. Paul • Fort Worth • Portland • Seattle • San Francisco • Los Angeles • Distributors throughout U.S.A.

Catalogs are available on request to Macwhyte Company or authorized distributor.

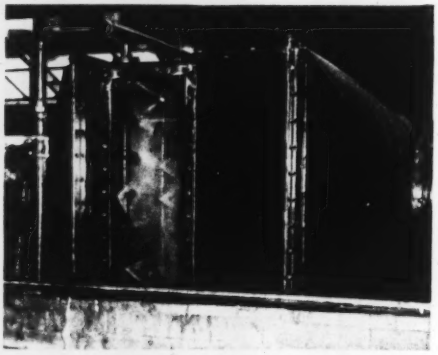
MACWHYTE COMPANY
KENOSHA, WIS.

Another Pickle Line Protected Throughout by

PLIOWELD

TANKS and COVERS

Wherever metal surfaces are exposed to corrosive acids in this pickle line—tanks and covers, fume duct and scrubber equipment, exterior stack—protection comes from Plioweld—Goodyear's *permanent* anticorrosion lining of rubber bonded to metal. Every Plioweld installation is formulated especially by the G.T.M.—Goodyear Technical Man—to meet the exact demands of the job. To get his assistance with your corrosion problems, see your nearest Goodyear Industrial Rubber Products Distributor, or write Goodyear, Akron 16, Ohio.



AIR WASHER REMOVING FUMES

GOODYEAR INDUSTRIAL RUBBER PRODUCTS

GIR-Specified USES FOR PLIOWELD

PROCESSING TANKS—rectangular, round, square • TANK COVERS—flat, box, radius types • STORAGE TANKS—open top, flat or dished heads • TRUNK TANKS • FLANGED PIPE • FLANGED PIPE FITTINGS • FANS—wheels and housings • DUCTWORK • SCRUBBERS—air purifiers • AGITATORS • CONTINUOUS VACUUM FILTERS • TROUGHS AND CHUTES • PUMPS • FILTER FRAMES • MOISTURE ELIMINATORS • MISCELLANEOUS FABRICATED ITEMS

Plioweld can also be used to combat abrasion

EXTERIOR STACK and BREECHING

GOODYEAR

THE GREATEST NAME IN RUBBER

Plioweld—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

STEEL

This Week in Metalworking

STEEL

Vol. 131 No. 10 Sept. 8, 1952

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DRAWING DIE POLISHING
Is Cleaner and Faster with
ELGIN DIAMOND

. . . AT HOSKINS MANUFACTURING COMPANY in Detroit, leading producers of high alloy resistance wire. Elgin's ready-to-use packaging and color identification of the various grades add still further savings in shop time. Elgin Diamond in DYMO will reduce your finishing and polishing costs, too, and give you uniform top quality results. That's why more and more of the country's leading wire mills . . .

Finish with Diamond
. . . ELGIN *Diamond!*

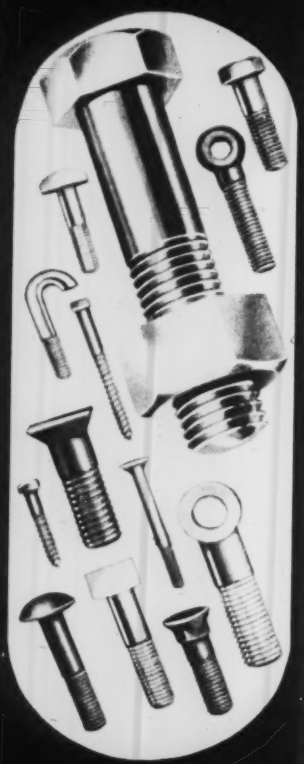
DYMO for General Polishing | DYMO-C for Carbides

ABRASIVES DIVISION, DEPT.
ELGIN NATIONAL WATCH CO.
ELGIN, ILLINOIS

UNIFORM CLASS 3 FIT

BOLTS·NUTS
STUDS

- Carbon Steel
- Silicon Bronze
- Alloy Steels
- Naval Brass
- Stainless Steel
- Monel Metal



You can depend on a uniform Class 3 fit when you buy Pawtucket threaded fasteners. Standard items or specialties — all Pawtucket products are accurately made in standard dimensions or to your specifications. Heat treating with precision-controlled modern equipment.

BETTER BOLTS SINCE 1882

PAWTUCKET

THE BOLT MAN

MANUFACTURING COMPANY

327 Pine Street Pawtucket, R. I.

THE PLACE TO SOLVE YOUR BOLT PROBLEMS

Behind the Scenes...

Cover Stuff

Beginning this week STEEL will present for the first time, the new weekly Bureau of Labor Statistics' finished steel price index.

The bureau has been computing this figure monthly, and since revising and improving it early this year it's probably the most comprehensive one of its kind ever produced; it takes every influencing factor into consideration.

Assistant Managing Editor Vance Bell saw the value of the new index and asked the bureau if they could figure the thing on a weekly basis as well as monthly. They agreed to do so. They close their period on Tuesday, figure all day Wednesday and part of Thursday and then rush the figure to us, beating our press deadline by just a couple of hours.

To make sure that the figure will have some significance for you, the editors have gone all the way back to 1947 and refigured the index by the revised and improved method.

A Man's Castle

We talked to STEEL's editorial nomad, Bob Jaynes the other day. For the past seven months his wife and two sons have been living more than a hundred miles away with the in-laws. Now he finally found a home here in Cleveland and the family will be able to cease the weekend existing.

Hooker is that the home is still only a vacant lot with construction scheduled for an early start. Undaunted, however, Bob drives out in the evenings and mentally moves furniture for future satisfaction.

From Smoke-Filled Rooms

Some posters came in the other day from Westinghouse Electric Corp. They show how the company tied in the national campaigns for presidential nomination with the Westinghouse suggestion system.

One of the posters has this message on it: There are only a few candidates for President. But everyone can be a candidate for a suggestion award. Pictures of six campaign buttons graced the poster.

We think some of the slogans on the buttons are worth repeating. Here are three of them: I'm Looking Over Eestes Kefauver; Let's Hustle for Russell; and a rollicking, We Need Adlai Badly.

Fore!!!

A local golf course resounded to the whacks of a trio of STEEL editors last week as Ed Birkner, Floyd Lawrence and Art Zimmerman played the front nine. Ed shot a whopping 78, Floyd got a respectable 61 and Art turned in a pace-setting 54. Suspicious and slightly murderous looks from Ed and Floyd followed Art the rest of the week. He's the kind of a guy who says, "I only play once or twice a year and just want to dub around with you fellas."

Oriental Angling

Fishermen attention! Just in case you get to South Korea and want to go fishing, we pass along the following information gleaned from the ECA Monthly Fish Catch Report, South Korean Waters, for 1948. Largest catches of the following fish were caught in the month indicated: Alaska Pollock, November through December; Endrial Neoulosus, May and June; Pleuregramusus Axonus, February through May; Japanese Jelly Weed, June through September. Whales, May and August.

Puzzle Corner

Answer to the puzzle in the August 25th issue is 22 packs. First in with that one were: George W. Frederick, Republic Steel Corp., R. Thurman, Sheffield Steel Corp., W. C. Fuller, DoAll Gulf Co., Robert W. Huff, Canton, O., D. E. Robichaud, Truckstell Mfg. Co., Ginger Allen, Belden and Hickox, Ralph Pappenheimer, Specialty Device Co., M. S. Toon, United States Steel Corp., Olga Roberts, Service Iron & Steel Co., and John S. Wheeland, Anchor Coupling Co. Inc.

Here's a breather for this week. An army sergeant has a gang of 36 men. He wants six of these men to have the duty for the day, but he'd like to let the rest go on pass. Still he wants to give the whole proceedings an air of impartiality. So he arranges all 36 in a circle and assigns the duty to every tenth man. In what places did he put the six unfortunates?

Shrdlu

(Metalworking Outlook—Page 49)

On the third draw Multipress completes this .064 phosphorus bronze housing, precision-drawn and formed to 3-inch depth, hole in base centered in embossed ring.

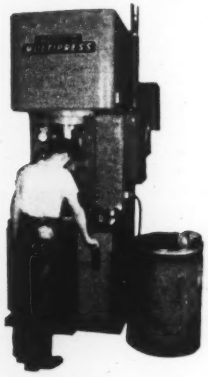
Completed

like this — by

MULTIPRESS®

on the THIRD DRAW

Deep-drawing jobs average 50% FASTER at Hudson Tool and Die



Multipress offers eight frame sizes... one to 50-ton capacities . . . manual or automatic controls . . . index-table, dial, and harmonic stock feeds . . . many other standard accessories for special needs.

With the smooth, rapid, *controlled action* of oil-hydraulic power, Multipress takes its usual big bite out of production costs for another new user — the Hudson Tool & Die Company, Newark, N. J. The company specializes in accurately drawn shapes of steel, phosphorus bronze, brass, and copper.

A 50-ton Multipress with standard punch and draw ring does *better* work in *fewer stages* than the press used previously — *with less metal fracture than before.* Draws average 20% deeper . . . production is up from 600 units per hour to an average of 900 per hour . . . quality is better than ever . . . highest safety is assured by dual hand-lever controls . . . and unskilled workmen get perfect results from the start because Multipress permits infinite adjustment of ram *pressure, speed* and *stroke* for each operation.

(Hudson Tool & Die already has a second Multipress on order, as this is written, and is planning for additional units in the near future.)

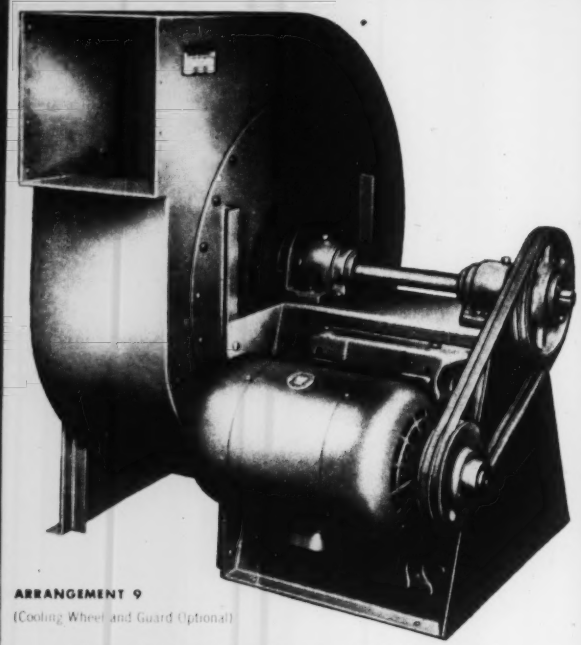
Other plants report equally remarkable savings and short cuts — not only on *drawing* jobs, but also in broaching, forming, bending, stamping, staking, crimping, flaring, riveting and many other operations. Write today for full information.

THE DENISON ENGINEERING CO.

DENISON HydrOILics

1163 Dublin Road
Columbus 16, Ohio

ANOTHER NEW STURTEVANT DEVELOPMENT!



ARRANGEMENT 9
(Cooling Wheel and Guard Optional)

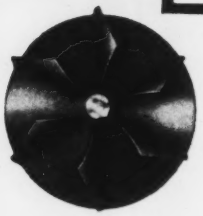
The new Sturtevant Industrial Fan is available in four standard arrangements and a choice of three wheel types. It can be furnished for chain or belt drive as well as direct-connected motor drive.

FOR EXHAUSTING

The Air Handling Wheel, with its backwardly inclined blades, gives you the highest operating efficiencies on the market today for general industrial air handling. It is particularly suitable for exhausting smoke, fumes, gases and light dusts from industrial processes as well as for oven circulation, heat treating and drying applications. Power consumption is low over a wide range of volumes and pressures.

FOR MATERIAL HANDLING

The Material Handling Wheel is a heavy-duty, radial bladed, side plate type designed for general purpose material handling. It is especially applicable to grinding and buffing wheel exhaust systems, and for conveying such materials as sawdust, granular particles and chips. This wheel combines high fan efficiency with its material handling features.



FOR SPECIAL APPLICATIONS

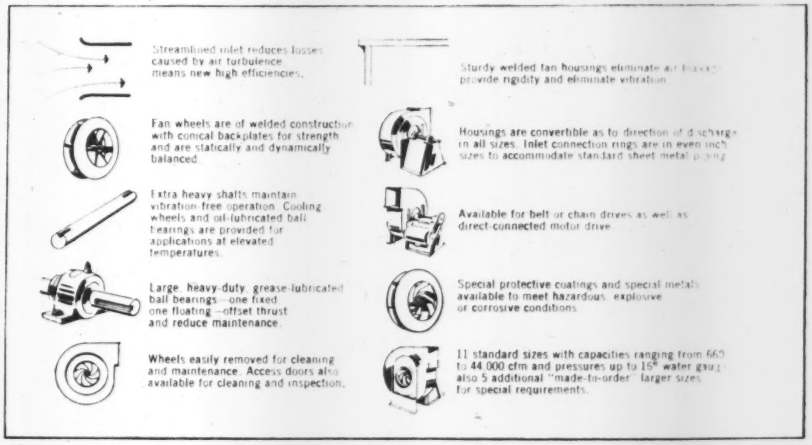
The Long Shavings Wheel is a material handling wheel without side plate. It has been designed particularly for those material handling jobs where long, stringy materials must pass through the fan.

BUY A BETTER
INDUSTRIAL FAN
to do all these jobs:

1. Handle Air, Exhaust Fumes, Gases, Smoke
2. Remove Metal Dust, Chips, Sawdust, Grains
3. Convey Long, Fibrous Materials

Never before have you been able to find the combination of ruggedness, flexibility and high efficiencies now available in this new Industrial Fan. It has been designed for hard work—and *performs* on rough, tough industrial air handling jobs. It will help you to reduce operating costs by eliminating the manual or mechanical handling of many types of materials. It will help you to eliminate hazards and improve working conditions by exhausting fumes, dusts and vapors and performing many similar applications—all with a minimum of maintenance.

Here are ten top features which mean high efficiency, flexibility, and long life:


Streamlined inlet reduces losses caused by air turbulence, means new high efficiencies.
Sturdy welded fan housings eliminate air losses, provide rigidity and eliminate vibration.
Fan wheels are of welded construction with conical backplates for strength and are statically and dynamically balanced.
Housings are convertible as to direction of discharge in all sizes. Inlet connection rings are in even inch sizes to accommodate standard sheet metal piping.
Extra heavy shafts maintain vibration-free operation. Cooling wheels and oil-lubricated ball bearings are provided for applications at elevated temperatures.
Available for belt or chain drives as well as direct-connected motor drive.
Large, heavy-duty, grease-lubricated ball bearings—one fixed, one floating—offset thrust and reduce maintenance.
Special protective coatings and special metals available to meet hazardous, explosive or corrosive conditions.
Wheels easily removed for cleaning and maintenance. Access doors also available for cleaning and inspection.
11 standard sizes with capacities ranging from 660 to 44,000 cfm and pressures up to 16" water gauge; also 5 additional "made-to-order" larger sizes for special requirements.

CERTIFIED RATINGS

Certified ratings are the result of tests made by the Manufacturer in accordance with the Standard Test Code for Centrifugal, Axial, and Propeller Fans adopted jointly by the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers.

AUTHORIZED BY N A F M

© the national association of fan manufacturers

These Fans are certified under the NAFM Standard Test Code and carry the NAFM Certified Ratings Label.

Just off the press, Catalog 1150 gives you 60 pages of complete application information as well as performance and dimension tables for all sizes and wheel types. For your free copy, call your local Westinghouse-Sturtevant Office, or write Westinghouse Electric Corp., Sturtevant Division, Hyde Park, Boston 36, Mass.

YOU CAN BE SURE... IF IT'S Westinghouse

AIR HANDLING

TUNE IN ON HISTORY! Only Westinghouse brings you complete coverage of political campaign over CBS television and radio.

NEW

PACKAGED carbon dioxide FIRE EXTINGUISHING SYSTEM

inexpensive . . . simple . . . sure!

Do you want maximum fire-fighting power at minimum cost? Then you want the new *Kidde* Standard Pak. It's an inexpensive ready-made system you can build in for protection against tough fires in normal flammable liquid hazards.

Anyone who can cut pipe can set up this pre-engineered fire extinguishing "package." Choose from six sizes for volumes up to 6,000 cubic feet.

Every kit contains *Kidde* rate-of-temperature-rise heat detectors, *Kidde* Multijet nozzles, and automatic discharge heads. Pipe and fittings are optional, as are pressure trips and switches, remote controls, sirens, gongs.

pre-engineered

any pipefitter can install it

merely measure the size of the room

Send today for further details on The New *Kidde* Packaged Fire Extinguishing System.

Kidde

Walter Kidde & Company, Inc.

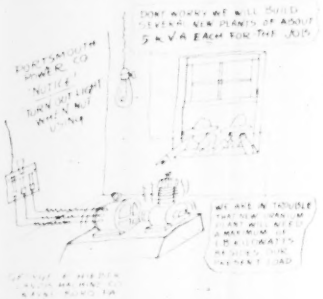
960 Main Street, Belleville 9, N. J.

Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

LETTERS TO THE EDITORS

Should Have Been Millions

• *Occasionally we get a wordless letter which is more eloquent than a four page missile. The cartoon below was received as is, accompanied only by a clipping of an article which appeared in* STEEL, *Aug. 18, p. 71 and read in part: "A maximum of 1.8 kilowatts of power will be needed when the ($1.2 billion, Pike County, O., gaseous diffusion) plant is in full operation. New power plants will have to be built." It should have read, of course, 1.8 million kilowatt will be needed.—ED.*



Solder But No Corrosion

We noted your article "Solder Is Noncorrosive" (July 28, p. 75). Because a noncorrosive flux that can be used on aluminum as well as steel is a unique development, we would appreciate the source of further information on that subject.

W. B. DeLong
E. I. du Pont de Nemours & Co.
Wilmington, Dela.

• *Write to the Library of Congress Photoduplication Service, Publication Board Project, Washington 25, and ask for report PB 106584. This is a progress and summary report on noncorrosive flux parts for universal application.—ED.*

Rolling Along on Nylon

Your article "Nylon Powder for Rollers" (July 28, p. 75), containing the statement that material made by cold pressing this nylon powder shows great promise in frictional applications, is very interesting to us. Where can we get additional information.

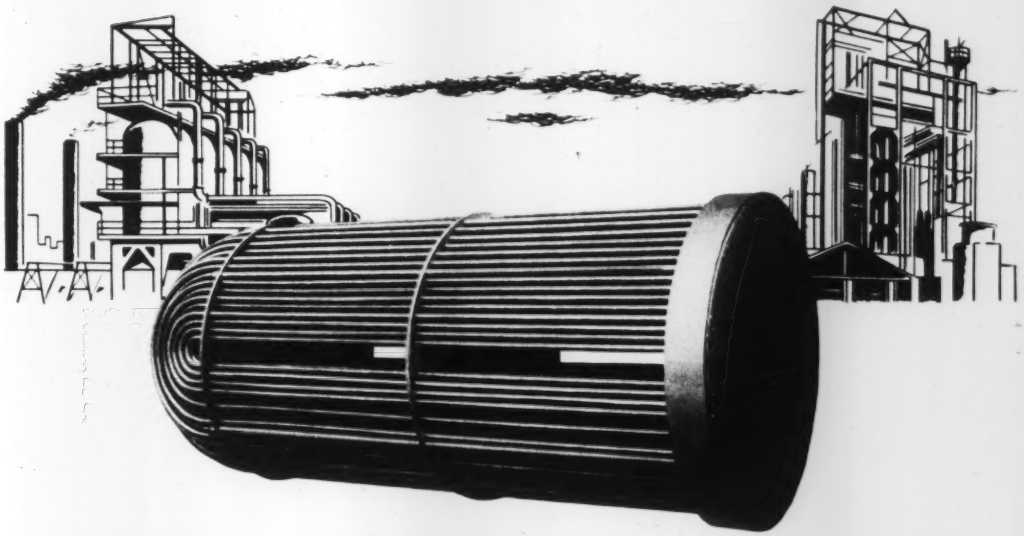
Robert B. Cottrell
chief mechanical engineer
American Steel Foundries
Chicago

• *Write to National Polymer Products Inc., Box 422, Reading, Pa.—ED.*

Signposts to Galvanizing

We are contemplating the erection of a hot dipped galvanizing plant for galvanizing sheets.

We should like to contact competent authorities for the construction of this plant. We will appreciate your advice



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Sizes and Analyses

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Square: ⅛" to 2" O.D.

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Square: ¼" to 2" O.D.

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4%-6%, 6%-8%, 8%-10%
⅜" to 1⅜" O.D.

STAINLESS STEEL
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Types 304, 316, 321, 347
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COLD FINISHED
⅜" to 2½"

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Pacific has the mill . . . the engineering and metallurgical know-how . . . the modern equipment to produce cold-drawn seamless tubing; welded and drawn stainless steel tubing; welded carbon tubing in both the quality and quantity you need. Our position in the heart of the Western Industrial Area is an additional assurance—that we deliver on-time, every time.

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Find out more about Pacific Production and Service today. Clip and mail the coupon today for our newest tubing bulletin, or have our representative call to discuss your needs. No obligation in either case.

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TOOL COMPANY
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DETROIT 3, MICHIGAN

LETTERS

Continued from page 10

as to people we may contact for the proposed construction.

Also, if there are any publications on the subject of galvanizing, will you so advise.

Victor J. Lee
Loudee Steel Corp.
Montreal, Canada

• *We recommend the following books on the subject of galvanizing: "Galvanizing" by Bablik, published by John Wiley & Son, and "Galvanizing Handbook" by Daesen, published by Reinhold Publishing Co. A list of American firms which make and install galvanizing equipment has been forwarded.—ED.*

Plant Tours Are Telling

We are interested in your article "Companies Seek Company: Plant Tours Pay Off" (Aug. 11, p. 66). May we have permission to reproduce this article for our members with due credit, or better still, may we obtain 100 copies of the article directly from you.

Avery C. Newton
Refractories Institute
Pittsburgh

• *You may have permission to reproduce the article, or you can obtain reprints through our Reprint Department.*

Appeal to the Voters

Here's more congrats on your editorial "The Golden Egg" (Aug. 25, p. 59). Time-worn but applicable cliches such as "Lest we forget" and "A word to the wise" ring out anew.

Let us hope that the message falls not on deaf ears. Amen.

So much for the editorial.

I should like to suggest that STEEL, as well as other publications, begin an unprecedented appeal to the voters of America to exercise their privilege in the November election. I don't care who votes for whom so long as everybody votes!

R. W. Halverson
purchasing agent
Marathon Electric Mfg. Corp.
Erie, Pa.

• *Amen.—ED.*

The Gathering Torrent

Your editorial "Join This Crusade" (Aug. 18, p. 61) was very interesting but most disquieting. In an effort to jar the readers of our two house organs into a greater sense of reponsibility come Nov. 4, I would like very much to obtain permission from you to use this fine editorial. Our two house organs, internal and external, are mailed monthly to more than 22,000 persons. It is my feeling that it behooves us to do whatever we can in our small way to force upon their thinking, their great responsibility and privilege.

A. J. Swartz
Modine Mfg. Co.
Racine, Wis.

• *Permission granted.—ED.*

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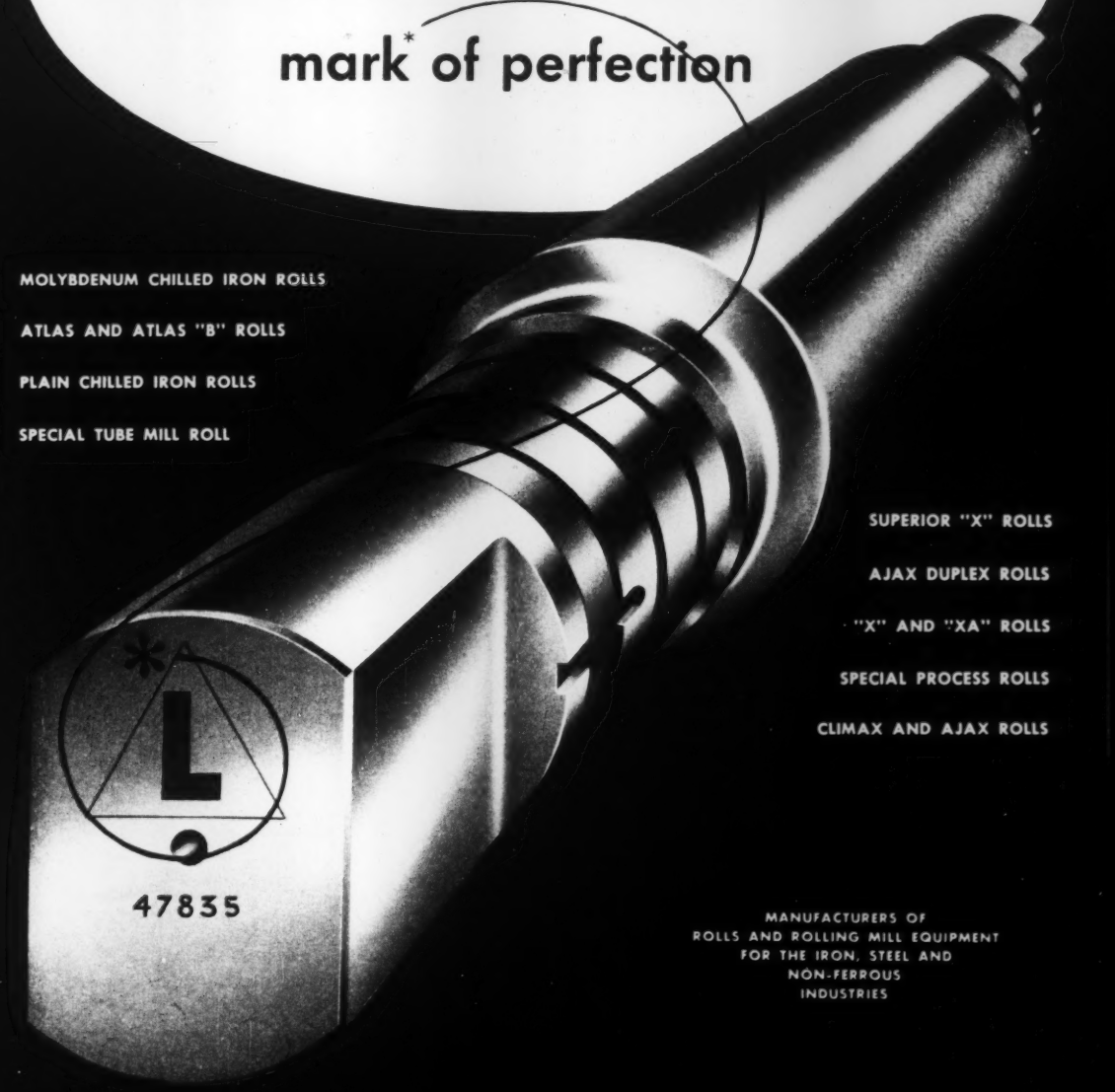

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MANUFACTURERS OF
ROLLS AND ROLLING MILL EQUIPMENT
FOR THE IRON, STEEL AND
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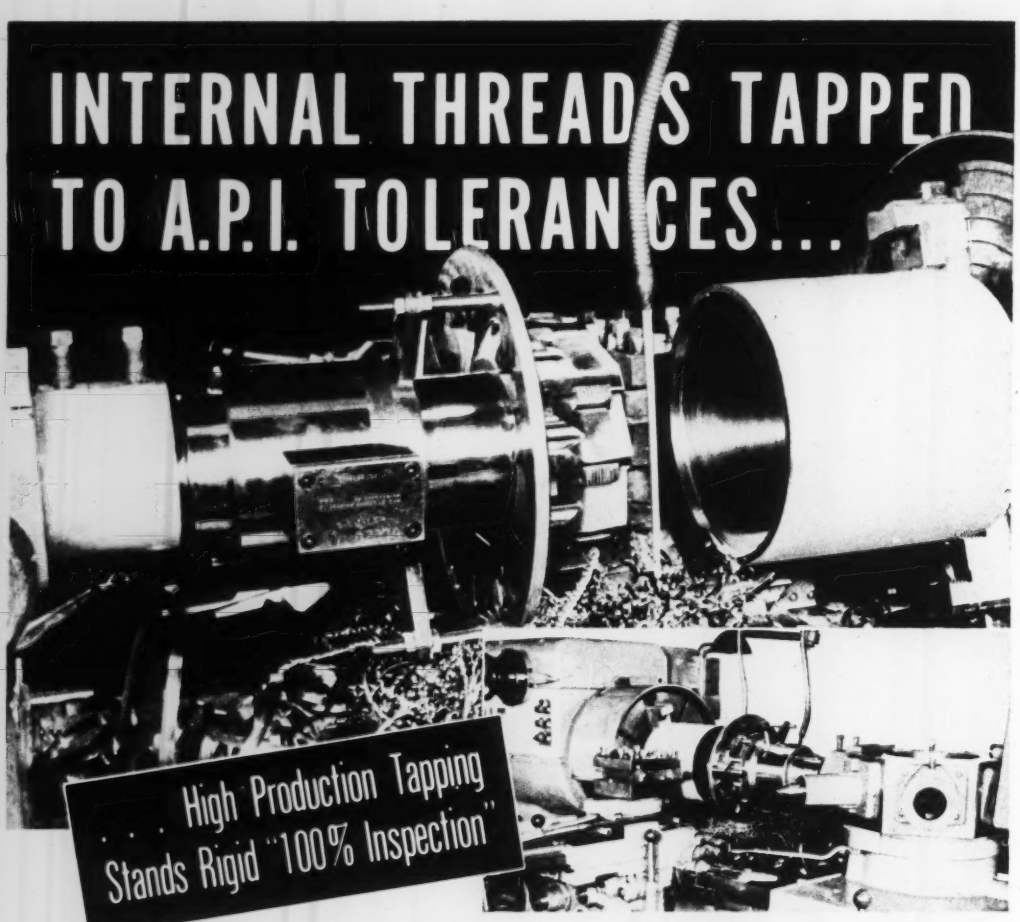
INTERNAL THREADS TAPPED TO A.P.I. TOLERANCES...



. . . High Production Tapping Stands Rigid "100% Inspection"

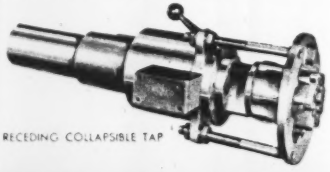
Casing couplings are subjected to enormous strains created by the weight of the suspended casing, as well as to tremendous internal and external pressures. For these reasons they require threads of extreme accuracy. Thus the prime consideration in the selection of equipment for the production of these threads is that it produce A.P.I. threads at economical production rates.

The operation shown here is one of many where internal tapered threads are cut to A.P.I. tolerances at high production rates by Landis LL Receding Collapsible Taps. 8 pitch round form threads are cut in Grade N80 casing couplings $10\frac{3}{4}$" in diameter to a length of 4" with a $\frac{3}{4}$" taper. Production is high—averaging consistently about 17 surface feet per minute. A.P.I. tolerances are met without difficulty.

Landis LL Receding Collapsible Taps are designed and built for this type of work. The receding mechanism causes the chasers to recede into the tap head automatically at a rate equal to the taper of the thread being cut. When the thread is completed the chasers collapse into the tap head, and the tap is withdrawn.

Each tap has a wide range of cutting diameters since the tap heads are detachable and interchangeable. For example, if furnished with appropriate heads, the 6LL Tap Body, shown here equipped with a 10" ALM Tap Head will cut threads in all pipe sizes ranging from 6" to 12" inclusive. The Style LL Tap Body is made in four sizes to cover a range of nominal pipe sizes from 1" to 12" inclusive.

Write for Bulletin G-95



LANDIS STYLE LL RECEDING COLLAPSIBLE TAP

LANDIS *Machine* COMPANY · WAYNESBORO PENNSYLVANIA

Is this "Drip" necessary?

NO . . . oil leakage from hydraulic machines — now costing industry millions of dollars annually — *can be controlled!* Today, after two years of intensive study, Socony-Vacuum can help you solve this critical problem.

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Helping you control hydraulic leakage is just one of many cost-saving services which go with Socony-Vacuum Correct Lubrication. Why not call our representative today?

Send *today* for this important booklet — "Is Leakage Necessary?" Write: Socony-Vacuum Oil Company, Inc., 26 Broadway, New York 4, New York

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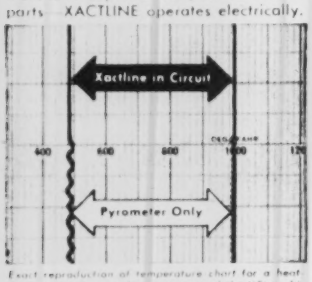
WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

Automatic
"STRAIGHT-LINE" TEMPERATURE CONTROL with XACTLINE

ELIMINATE
Overshooting
Undershooting

Are you going to continue to put up with that troublesome overshooting and undershooting inherent in your conventional pyrometer control — especially when it is so easy to eliminate that saw tooth effect?

Put XACTLINE in the control circuit. XACTLINE anticipates the temperature changes — before they occur. And too, it nullifies the varying amounts of thermal lag, residual heat, and mechanical lag — producing a short on-off cycle resulting in "Straight-Line" temperature control. This performance is possible because there is no dependence upon mechanical parts. XACTLINE operates electrically.



Exact reproduction of temperature chart for a heating process showing the comparison of the "Straight-Line" temperature control produced by XACTLINE and the saw tooth curve obtained with only conventional control.

XACTLINE is applicable to any indicating or recording pyrometer control of the millivoltmeter or potentiometer type. It should be used wherever close temperature control is required — any type of electrically heated oven, furnace, kiln, injection molding machine, and fuel fired furnaces equipped with motor-operated or solenoid valves.

XACTLINE is a complete unit. No adjustment or coordination with the control instrument is required regardless of the size of the furnace, length of the heating cycle, or size of the load. Installation is very simple — can be either flush or surface mounted.

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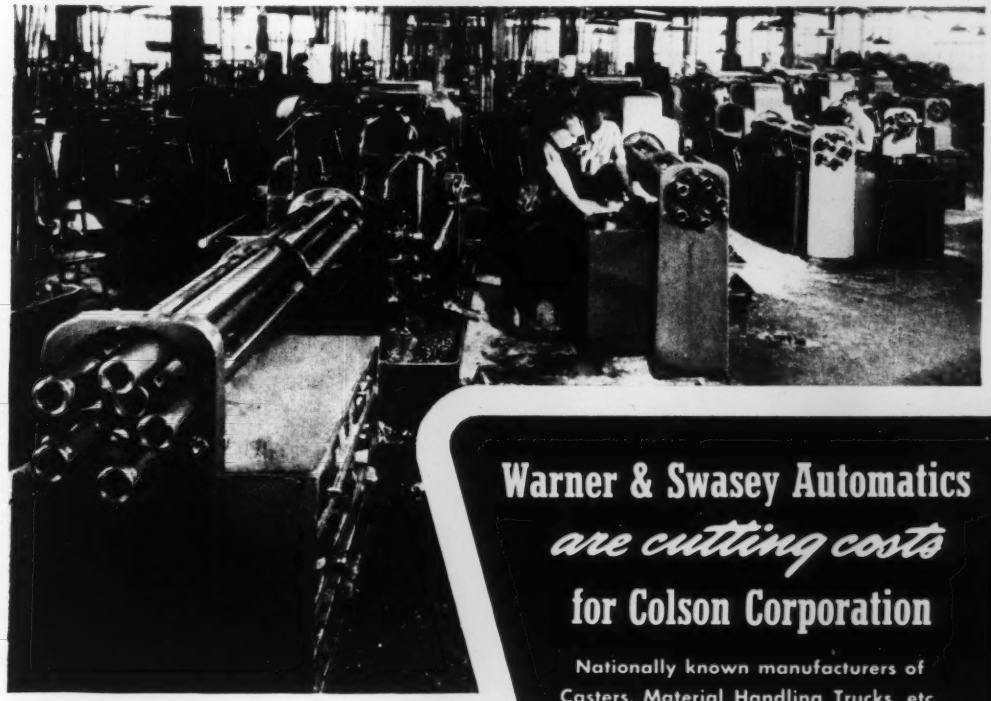

Warner & Swasey Automatics *are cutting costs* for Colson Corporation

Nationally known manufacturers of Casters, Material Handling Trucks, etc.

Five of seven Warner & Swasey 5-Spindle Automatic Bar Machines in operation at Colson Corporation, Elyria, Ohio.

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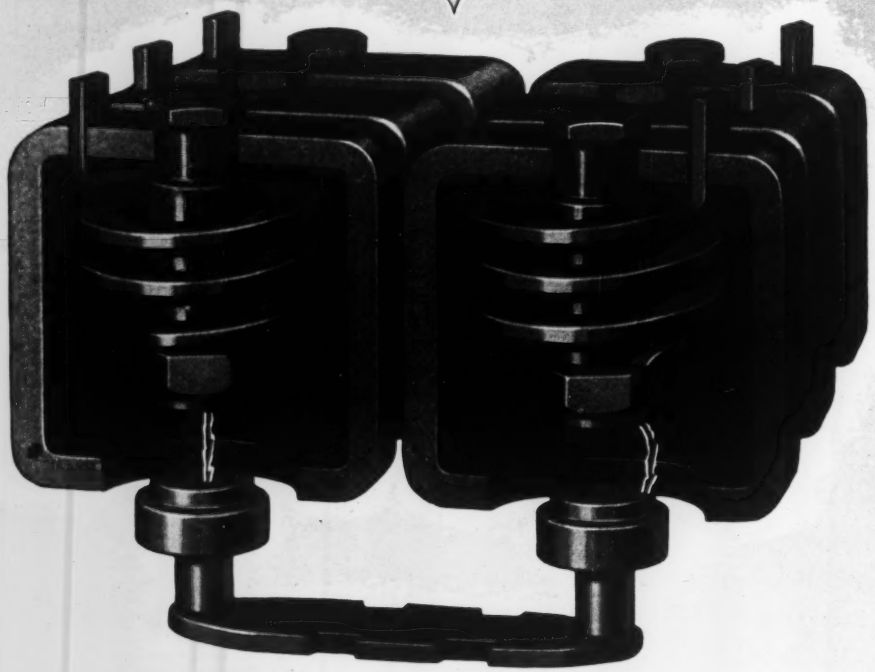
CLARK TYPE "CY"

The starter with the NEW ARC QUENCHING PRINCIPLE



Here's what happens inside the steel arc shields of the new CLARK type "CY" AC Motor Starters, sizes 2 and 3. Combining strong multi-turn magnetic blow-outs and double-break contacts for the first time in this type of starter, the CLARK Type "CY" sets new standards for effective arc quenching and length of contact life . . . The effect of the magnetic field set up by the coil extinguishes the arc by either lengthening or confining it. At the same time the arc is forced to rotate, thus moving continually from a hot to a cold spot on the contact surfaces. The arc chamber is closed at the top, thus minimizing the chances of phase to phase failure by preventing accumulation of ionized gases between wiring terminals.

THE CLARK CONTROLLER CO.

AC MAGNETIC MOTOR STARTERS

Now Available in SIZE 3

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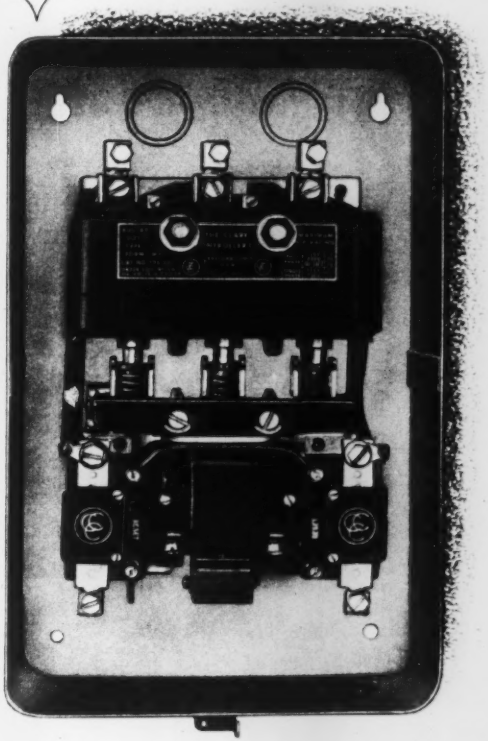
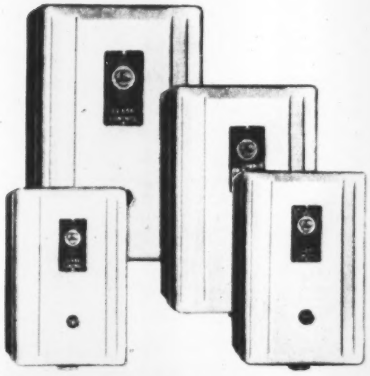


Clark Bulletin 6013 type "CY" AC Magnetic Starter, Size 3 with NEMA 1 cabinet cover removed. Note clean design, with plenty of wiring space



SEE ALL SIZES—0, 1, 2 and 3 IN VARIOUS TYPES OF CABINETS AT OUR BOOTHS 68, 69, 70, 71 at the Iron and Steel Exposition, September 30, October 1, 2 and 3.

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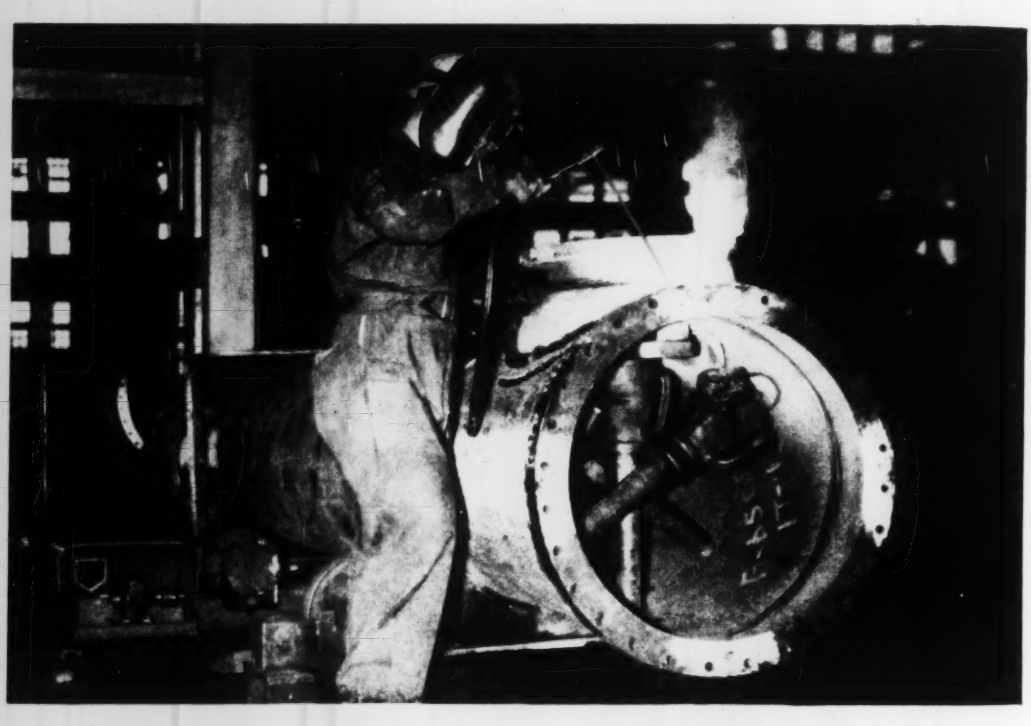
CLARK ENGINEERED ELECTRICAL CONTROL



This welder can weld up to 50% more than he used to!

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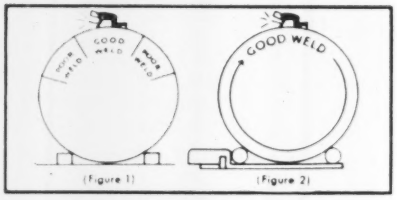

WHY WORTHINGTON TURNING ROLLS INSURE BETTER WELDS

Unless the work is turned continuously, good downhand welding is obtainable only in small area (Fig. 1). With a Worthington Turning Roll, downhand welding is assured for the complete circumferential seam (Fig. 2) as well as all longitudinal seams (either by manual or automatic welding).

Y-21

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Welding Positioners
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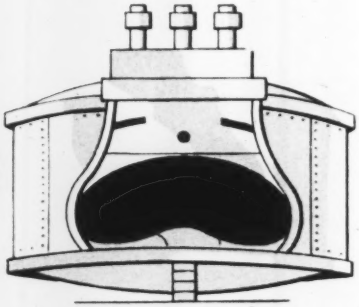

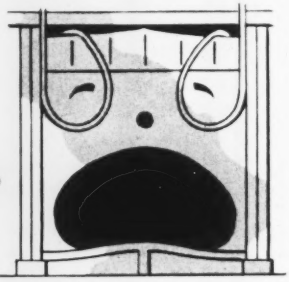

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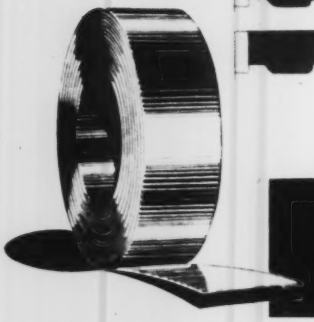

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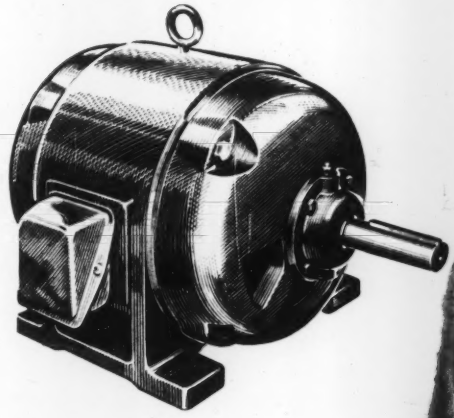
Bred for BRAWN



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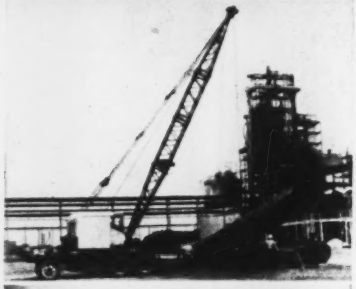
Long booms pile high — build storage areas "up" — save valuable yard area.

LOOK REACH FARTHER

Long Lorain Crane booms reach far and wide over stockpiles. Fewer aisles are needed. Lorain's long reach has revamped many yard storage methods.



LOOK HANDLE HEAVIER LOADS

Lorain Cranes will handle all your lifting problems. They are heavy-duty machines that won't let you down and will provide a choice of front ends and attachments to handle any type, size or shape of material. Capacities available up to 45 tons.

LOOK MOVE FASTER — FARTHER

You can go anywhere with a rubber-tire Lorain. You're not "chained to tracks". Your Lorain can travel fast inside or outside the plant — and can carry loads suspended from the boom wherever you want them. Will switch cars or trailers.

LOOK SAVE MANPOWER

One man at the controls of a Self-Propelled Lorain Crane does the job . . . he lifts the load and drives the crane. One man does the work of a whole crew. And Lorain Crane efficiency never varies with the hour or the weather.

LOOK GET PLUS SERVICES

And for a real "bonus" — perform jobs that other specialized material handling equipment cannot do — you can keep a Lorain Crane busy on plant maintenance and construction, steel erection, machinery installation, plus the "101" extra uses you're sure to find.

☆ You can do *MORE* with a LORAIN Rubber-Tire Crane than with any other single type of material handling equipment

Every one of these material handling jobs (and many more) *could* be handled in *your* yard . . . if a Lorain rubber-tire crane were on the job. *One mobile, rubber-tire Lorain Crane* can replace many pieces of single-purpose material handling equipment. With this mobile, one-man machine you are ready for any job . . . never "caught short" when touch lifts . . . or emergency jobs — come along. A Lorain handles the big as well as the little jobs. A Lorain will eliminate costly delays, save time and money. Investigate this modern material handling method at your Thew-Lorain Distributor . . . and start these many savings NOW!

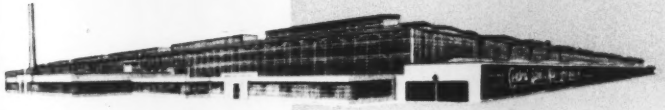
THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN®

RUBBER-TIRE CRANES FOR INDUSTRY

Fast,
Accurate
CUT-TO-ORDER
Service . . . . . .

STRUCTURALS . . .



Hot Rolled • Cold Finished
Carbon & Alloy • Stainless
Copper • Brass • Aluminum
Expanded Metal • Structurals

Central Steel & Wire Company

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Are you sure you couldn't do it

Only CARBO TRADE

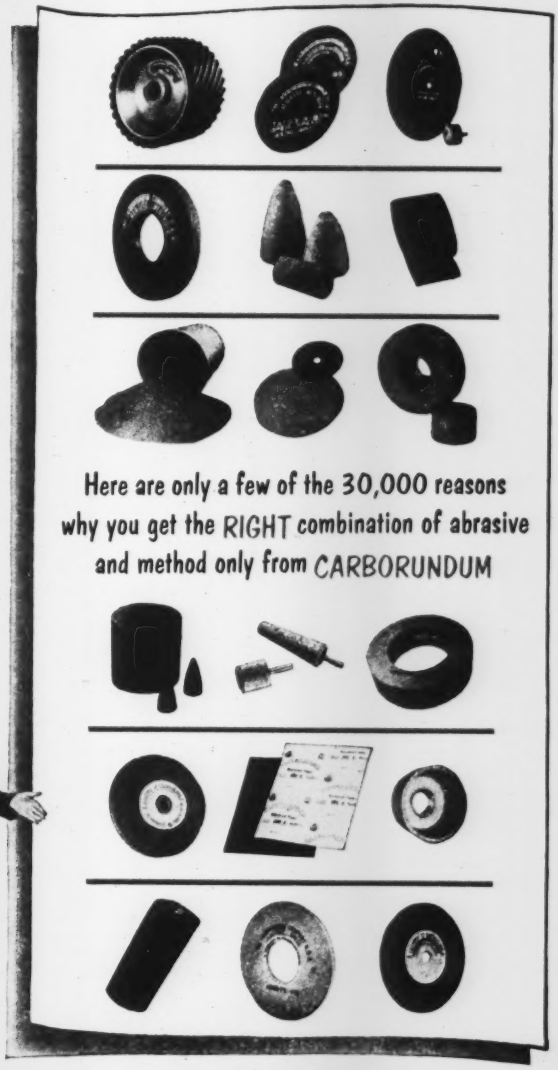
"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company, Niagara Falls, N.Y.

better with an Abrasive WHEEL?

Advances in abrasive techniques have multiplied enormously in recent years—giving you real cost-cutting opportunities in one of the few areas in your operations where costs can still be controlled. That's why we suggest you re-examine your abrasive methods right now, to assure yourself you're getting maximum efficiency, lowest cost, highest output.

To help you in this reappraisal, there's nobody so thoroughly equipped as the CARBORUNDUM man or distributor salesman. He's the only man who can recommend without bias, because he's the only man with a complete line of branded abrasives to meet every need you have. That's why he can match his product to your method—doesn't have to persuade you to change your method to match his product.

His experienced counsel is yours to command—backed up by the product quality which has made CARBORUNDUM the best-known brand name in abrasives throughout the world. Call him in today—it's to your profit!



Here are only a few of the 30,000 reasons why you get the RIGHT combination of abrasive and method only from CARBORUNDUM

RUNDUM
MARK

offers ALL abrasive products...to give you the proper ONE

IT'S YOUR LIGHT OF LIBERTY KEEP IT BRIGHT

QUALITY YOUNGSTOWN SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY
GENERAL OFFICES · YOUNGSTOWN 1, OHIO
Export Offices · 500 Fifth Avenue, New York City
Manufacturers of
CARBON · ALLOY AND YOLOY STEELS

STEEL

INTRODUCING—

A New, More Sensitive Index of Steel Prices

STEEL

THE most sensitive and the truest index yet devised to reflect movement of finished steel prices is introduced for the first time on a weekly basis in this issue of STEEL.

The index is computed in the Bureau of Labor Statistics, U. S. Department of Labor, Washington. The work is done by the Branch of Industrial Prices, whose chief is Jesse M. Cutts.

Prior to now, the bureau's index was issued once a month.

Recognizing the excellence of the index and wishing to make it available each issue to its readers, STEEL urged the bureau to step up its report to once a week. The bureau acceded to this request, and STEEL, in this issue, is the first to present the weekly figure.

Extra, Extra

The bureau's index of prices of finished steel is superior in that it not only considers base prices but also extras. Ordinarily, indexes of steel prices consider only base prices because of the difficulty of determining what extras should be included and the work of incorporating them in the index. Extras account for a substantial part of the cost of steel to a consumer. Also contributing to the superiority of the bureau's index is the wide and representative list of products on which the index is based.

Indicative of the sensitivity of the bureau's index is the slight decline in the week ended Aug. 12 from the preceding week's level (see table on the back of this insert). The decline reflects the automatic downward revision in extras for zinc coating of steel following a drop in zinc prices.

The bureau's new weekly index is an extension of its monthly index that was improved through revision early in 1952. The revision incorporated additional extras and placed the index on a postwar base of 1947-1949 that had been recommended by the Division of Statistical Standards, U. S. Bureau of the Budget. Previously the base period was 1926.

The bureau's new index of prices of finished steel is based on 28 steel products (see table on the back of this insert). They are not random samples. They were chosen after consultation with producers and consumers of steel. To keep the index fully reflective of changes in consumption, the bureau will, when necessary, alter the list of commodities on which it bases its index.

The bureau will continue to issue its monthly index figure.

The weekly index figure will be computed for weeks ended as of Tuesday. It will appear in STEEL the first issue after that day. The index will be found regularly on the first page of steel prices. In this issue it is on page 158.

Connecting Link

Readers who now are basing escalator-type contracts on some other weekly index but who wish to switch to the bureau's new weekly index can obtain the bureau's assistance in linking the new index to the one being abandoned.

The BLS does not compute a dollar-and-cents price equivalent to its index number. It feels that such an equivalent is something akin to trying to give a cents per pound equivalent for sales of all livestock, rather than to say the average price for cattle is such and such, and the average price of hogs is such and such. You wouldn't mix cattle and hogs and assume they are all the same.

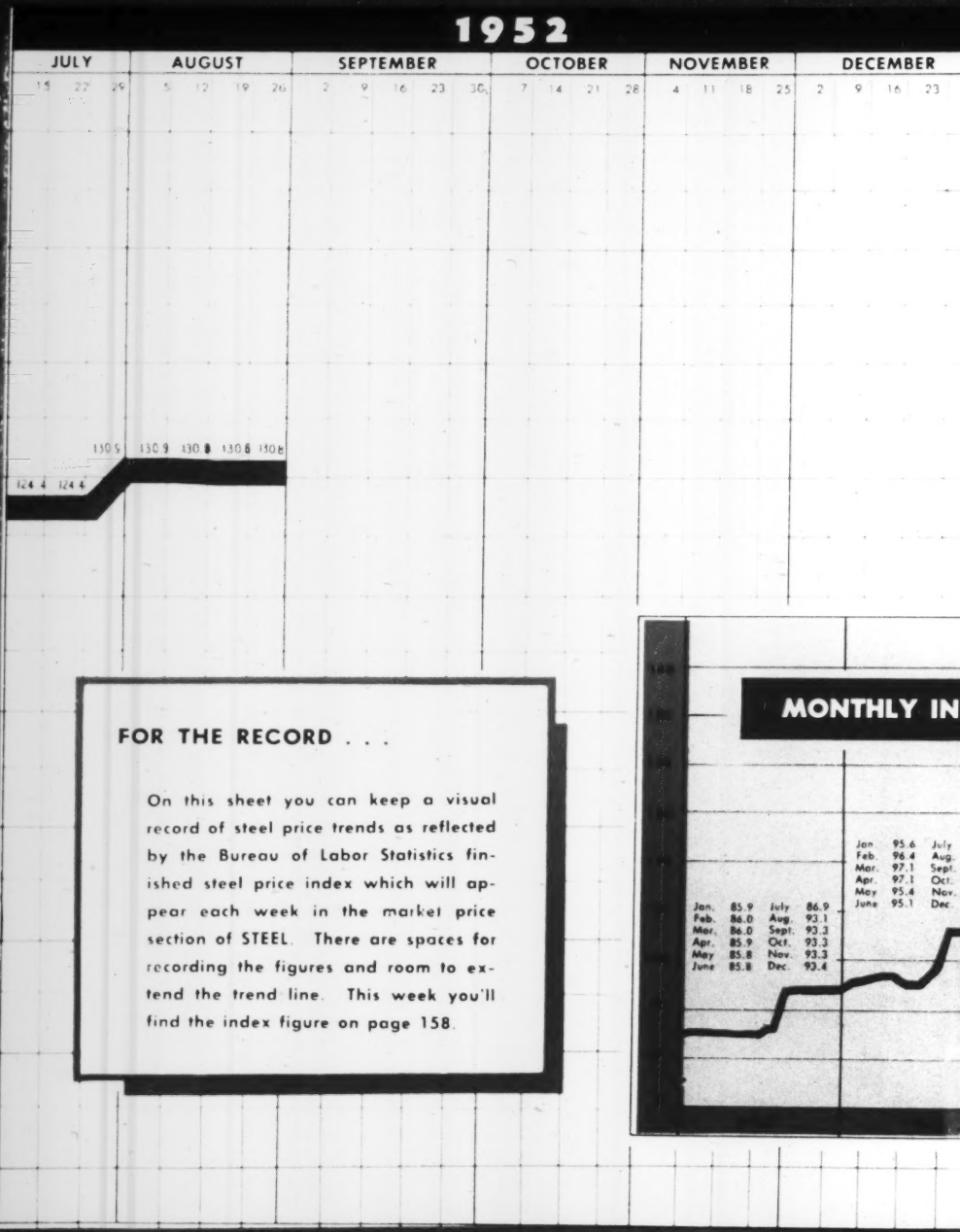
So, to be specific in its computations, the BLS issues weekly an average price for each of the 28 steel products on which its weekly index number is based.

For the weekly prices on those 28 products turn to the table on the back of this insert. There also are descriptions of the 28 products and the extras used in the price and index calculations. For a record of the BLS index, open this insert.

OPEN

WEEKLY INDEX OF FI

BUREAU OF LABOR ST



FOR THE RECORD . . .

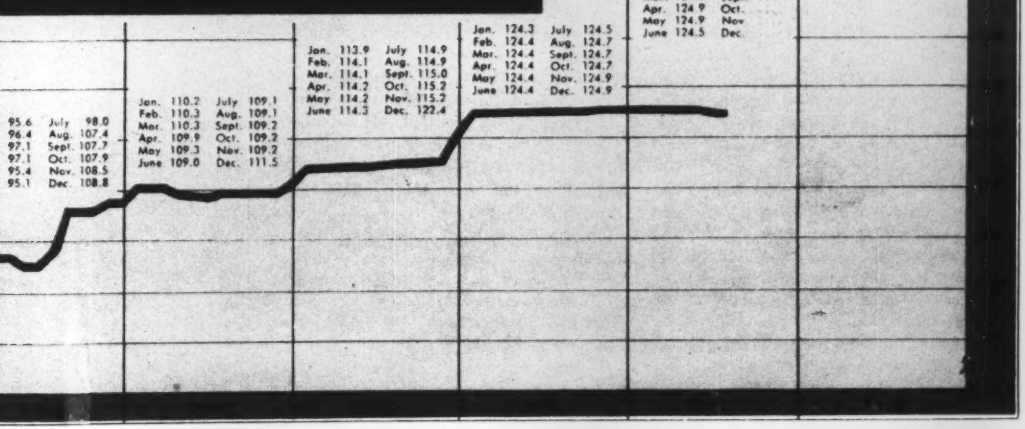
On this sheet you can keep a visual record of steel price trends as reflected by the Bureau of Labor Statistics finished steel price index which will appear each week in the market price section of STEEL. There are spaces for recording the figures and room to extend the trend line. This week you'll find the index figure on page 158.

FINISHED STEEL PRICES

1953

MBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
6 23 30	6 13 20 27	3 10 17 24	3 10 17 24 31	7 14 21 28	5 12 19 26	2 9 16 23

LY INDEX OF FINISHED STEEL PRICES



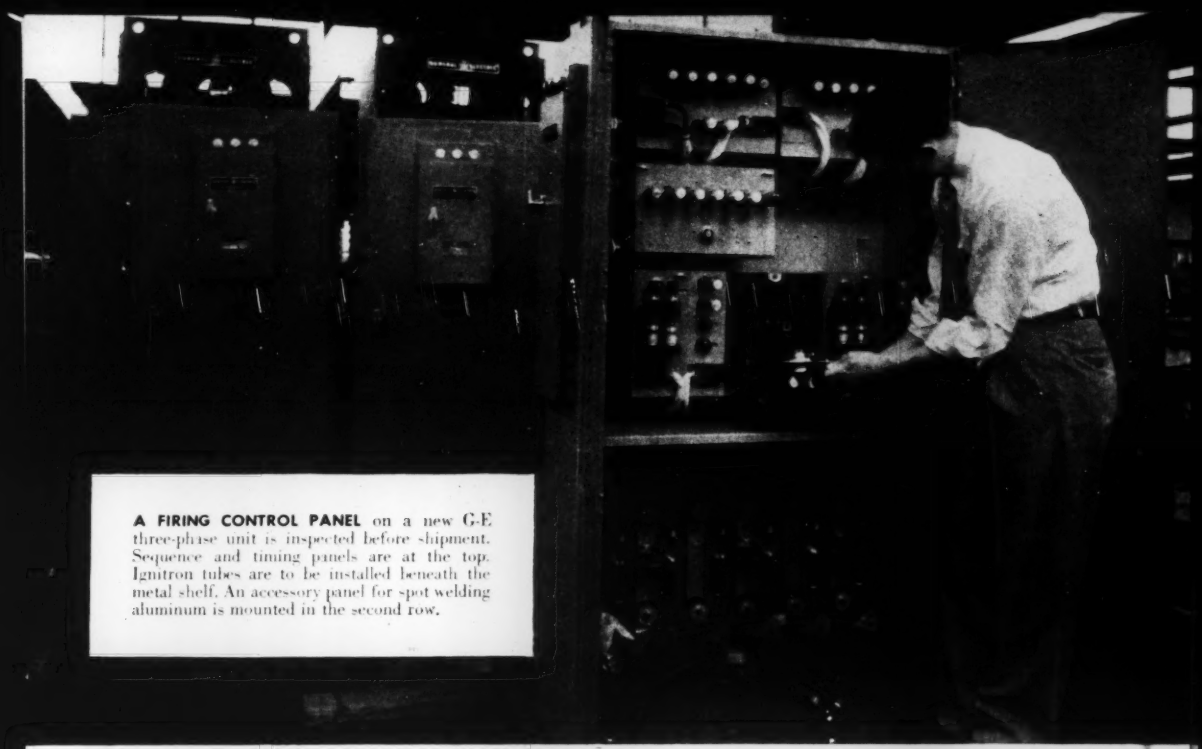
STEEL

THE BLS WEEKLY INDEX OF FINISHED STEEL PRICES

What It's Based On and Weekly Average Prices

Product	Type of Extras Used in BLS Computations	Delivery Terms	Unit	1952 PRICES July 15	July 22	July 29	Aug 5	Aug 12	Aug 19	Aug 26
Rails, No. 1, standard, open-hearth, in quantities of 500 net tons and over		(*)	100 lbs	$3.600	$3.600	$3.775	$3.775	$3.775	$3.775	$3.775
Spikes, track, cut		(*)	100 lbs	6.150	6.150	6.650	6.650	6.650	6.650	6.650
Bolts, track, treated		(*)	100 lbs	9.850	9.850	10.313	10.313	10.313	10.313	10.313
Tie plates		(*)	100 lbs	4.500	4.500	4.775	4.775	4.775	4.775	4.775
Joint bars, railroad		(*)	100 lbs	4.700	4.700	4.925	4.925	4.925	4.925	4.925
Plates, carbon steel, hot-rolled, 1/4 in. x 24 in. to 72 in. wide, base lengths, base quantity	Thickness	(**)	100 lbs	3.950	3.950	4.150	4.150	4.150	4.150	4.150
Structural shapes, standard, carbon steel, I-beam, 12 in. depth, 60 ft. length, ASTM (A 7-46)	Size and section, length	(†)	100 lbs	4.000	4.000	4.200	4.200	4.200	4.200	4.200
Bars, tool steel, high speed, 18-4-1 alloy		(*)	Pound	1.505	1.505	1.576	1.576	1.576	1.576	1.576
Bars, alloy 3120, open-hearth, hot-rolled	Grade	(*)	100 lbs	6.200	6.200	6.575	6.575	6.575	6.575	6.575
Bars, stainless 501, hot-rolled, molybdenum		(*)	Pound	143	143	149	149	149	149	149
Bars, carbon, hot-rolled, merchant quality, 3/4 in., random lengths	Size	(†)	100 lbs	3.850	3.850	4.100	4.100	4.100	4.100	4.100
Bars, concrete reinforcing, billet steel, straight lengths, 1 in. square or round	Size	(†)	100 lbs	3.800	3.800	4.050	4.050	4.050	4.050	4.050
Bars, cold-finished, carbon steel, 1 in. round, random lengths, standard quality, base quantity	Size, quality	(†)	100 lbs	5.550	5.550	5.925	5.925	5.925	5.925	5.925
Sheets, hot-rolled, carbon, 11 gage, 36 in. to 48 in. wide, 10 ft. long, base quantity	Width, length	(†)	100 lbs	3.950	3.950	4.125	4.125	4.125	4.125	4.125
Sheets, cold-rolled, carbon, 20 gage, 36 in. to 48 in. wide, 10 ft. long, drawing quality, base quantity	Width, length, quality	(†)	100 lbs	5.050	5.050	5.275	5.275	5.275	5.275	5.275
Sheets, galvanized, 24 gage, 36 in. x 96 in.	Commercial coating dimensional	(†)	100 lbs	6.790	6.790	7.065	7.065	6.995	6.995	6.995
Strip, cold-rolled, 0.25 carbon and less		(†)	100 lbs	4.650	4.650	5.100	5.100	5.100	5.100	5.100
Strip, cold-rolled, 430 stainless		(*)	Pound	310	310	325	325	325	325	325
Pipe, black, 3/4 in., buttweld, net to dealers		(*)	100 ft	6.708	6.708	7.090	7.090	7.090	7.090	7.090
Pipe, galvanized, 3/4 in., buttweld, net to dealers		(*)	100 ft	8.806	8.806	9.215	9.215	9.106	9.106	9.106
Boiler tubes, carbon steel, standard commercial, seamless, cold drawn, 2 in. and 2 1/2 in., cut lengths 10 ft. to 24 ft. inclusive (composite)		(*)	100 ft	29.725	29.725	31.360	31.360	31.360	31.360	31.360
Tin plate, standard coke, 1.50 pound base box, tin coating, 14 in. x 20 in., 100 lb. basis weight	Coating	(†)	100 lb base box	8.700	8.700	8.950	8.950	8.950	8.950	8.950
Terne plate, special coated manufacturing		(†)	100 lb base box	7.500	7.500	7.750	7.750	7.750	7.750	7.750
Wire, carbon steel, annealed, merchant, Nos. 6 to 8 gage		(*)	100 lbs	5.700	5.700	6.075	6.075	6.075	6.075	6.075
Wire, fence, galvanized, merchant, No. 9 gage	Size	(*)	100 lbs	6.200	6.200	6.500	6.500	6.500	6.500	6.500
Nails, wire, 8 penny, common		(*)	100 lb keg	6.930	6.930	7.380	7.380	7.380	7.380	7.380
Wire, barbed, galvanized, 2 point, 4 in. spacing, 80.5 pounds		(*)	80 rod spool	5.640	5.640	5.960	5.960	5.960	5.960	5.960
Woven wire fence, No. 11 farm and field, 9 gage top and bottom wires, 11 gage intermediate wire, 26 in. high, 6 in. (spaced) stay wires, 7 line wires, approx. weight per 20-rod roll 184 pounds		(*)	20 rod roll	12.980	12.980	13.810	13.810	13.810	13.810	13.810
INDEX (1947-1949 = 100)				124.4	124.4	130.9	130.9	130.8	130.8	130.8

(*) — F.O.B. mill.
(**) — F.O.B. producing points
(†) — F.O.B. producing points, Pittsburgh area



A FIRING CONTROL PANEL on a new G-E three-phase unit is inspected before shipment. Sequence and timing panels are at the top. Ignitron tubes are to be installed beneath the metal shelf. An accessory panel for spot welding aluminum is mounted in the second row.

New Maintenance and Modification Features on G-E Three-phase Resistance Welding Control

The picture above shows the new G-E three-phase sectionalized control with hinged panels for each control process, permitting quick inspection and servicing. To you, this new G-E control means:

DEPENDABLE OPERATION

The new G-E three-phase resistance welding control provides lower maintenance because just one relay on the main panel operates each time the solenoid valve relay operates. All resistors, transformers, capacitors, and other components are conservatively rated for long life.

VERSATILE DESIGN

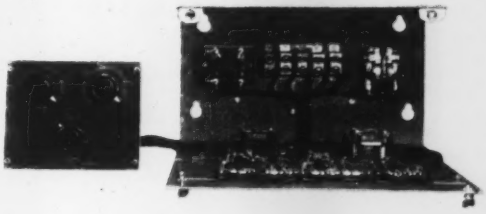
Circuit points are easy to reach. There is room in the cabinet for accessories or modifications when job requirements change. For example, if you are changing from welding $\frac{1}{32}$-inch to $\frac{1}{4}$-inch or thicker metal, you can get the added power simply by changing Size C ignitron tubes to Size D. A special kit is available containing the larger bus bars that can be quickly installed by your own service crew.

SERVICE FACILITIES NEAR YOU

Factory-trained G-E service engineers are on call 24 hours a day. There is one in your area ready to help you keep production going.

For more information on G-E three-phase welding control, fill out and send in the attached coupon today. General Electric Company, Schenectady, New York.

GENERAL ELECTRIC



A SEAM-WELDING AUXILIARY PANEL, like other panels, is easily mounted in the cabinet because of keyhole mounting slots. Spade terminals are easily connected to the terminal boards on the main panel. Dials are mounted on front of cabinet.

General Electric Company
Section B 645-56
Schenectady, New York
Gentlemen:

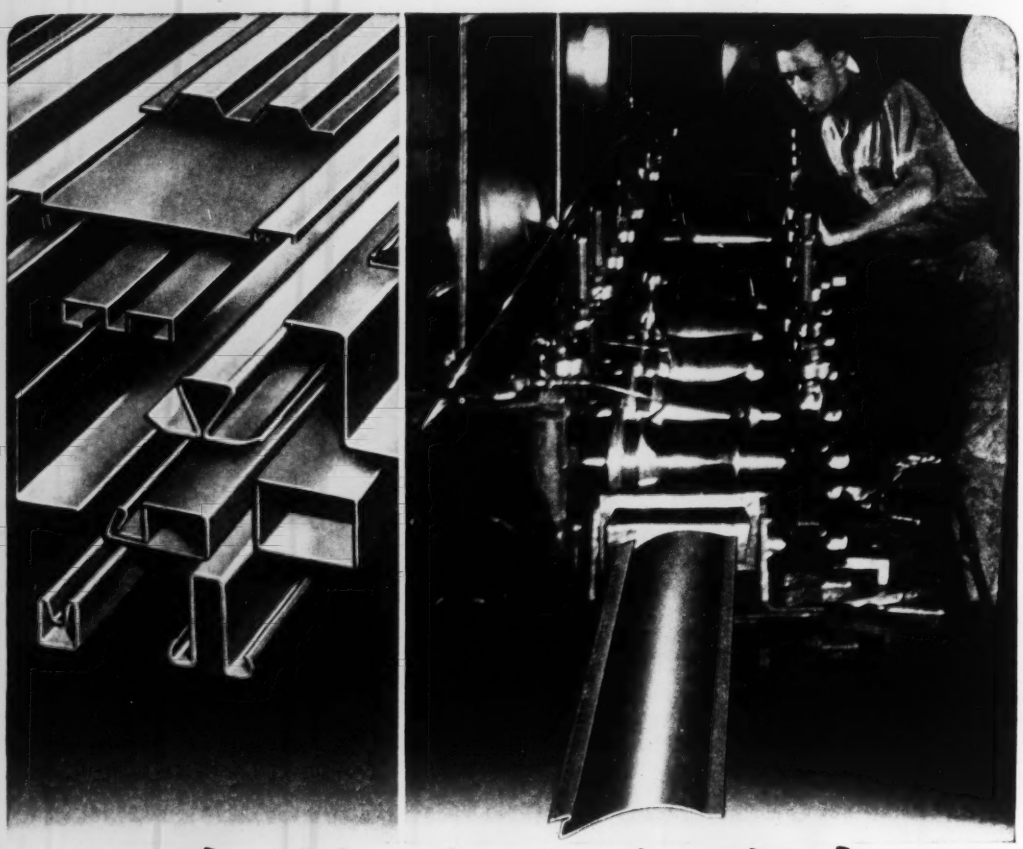
Please send me bulletin GEC-491 on G-E three-phase welding control. I would like to have this for:

☐ reference material ☐ an immediate project

NAME .....

COMPANY .....

ADDRESS .....



Metal Lumber by the Mile!

Not only rough but finished lumber, mouldings and trim, are made in an endless stream on a Yoder Cold Roll Forming machine, from coiled metal strip.

The photo shows the production of siding by Kaiser Aluminum and Chemical Corporation, Oakland, Calif. The strip goes in at one end, is perforated and formed, coming out at the other as finished siding, automatically cut to length, ready for installation.

As a matter of fact, almost anything that can be made from lumber can now be made more accurately, better and more cheaply from metal, by this method. Plain steel angles, channels and Z's up to $\frac{1}{2}$" thick, take the place of conventional framing lumber. More intricate shapes, combining structural strength with decorative value, serve for mouldings, panels and trim.

Billions of feet are now made annually on Yoder machines, owned by manufacturers of buildings and their components, furniture, electric appliances, automotive equipment, etc.

Yoder book on the function, scope and economics of Cold Roll Forming, sent on request. Consultations and estimates for the asking.

THE YODER COMPANY • 5502 Walworth Ave., Cleveland 2, Ohio

Complete Production Lines

- ★ **COLD-ROLL-FORMING and auxiliary machinery**
- ★ **GANG SLITTING LINES for Coils and Sheets**
- ★ **PIPE and TUBE MILLS – cold forming and welding**

ENGINEERING YODER MANUFACTURING

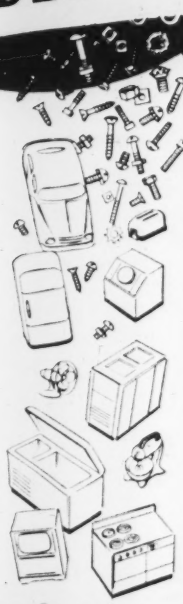
WHAT IS A DELIVERY PROMISE?

At PHEOLL it is a determination to earn and hold your TRUST

Your order for screw products . . . your delivery requirements . . . *set the pace* at Pheoll Manufacturing Company.

We recognize that your fastener orders have been planned to meet definite production schedules. We know that "down time" is costly. That's why Pheoll exerts every effort to deliver *the products you have ordered, as you have ordered them, and at the time specified.*

But going much further, a Pheoll delivery promise is a carefully-considered pledge, based on definite factors. Once you have been given a promise, your order is assigned a fixed spot in our own efficient schedule. *No other order, regardless of size, can displace it.* And both production-wise and method-wise, Pheoll is set up to complete your order AS PROMISED.



We produce billons of pieces annually . . . over 10,000 separate items . . . scheduled against a thousand first and second operation machines. That's really a complex problem! But Pheoll has developed systems for production scheduling and order control which we firmly believe to surpass those of any other screw producer . . . and Pheoll is one of the largest.

If, in your own operation, maintained schedules and assured delivery of components are imperative, may we send you our booklet entitled, *"Pioneering in Customer Service?"* It shows why you can rely on Pheoll as a dependable source of supply for all types of threaded fasteners.

PHEOLL SCREWS BOLTS

Heat Treating for Production?

• You can ease that production pinch . . . present or future . . . with Leeds & Northrup job-fitted Furnaces.

Job-fitting of L&N furnaces can . . . if you wish . . . include two stages of planning.

First is choosing the furnace equipment for the job you want done at present. It may be tempering or hardening; it may be gas-cyaniding, steam treatment, nitriding or carburizing . . . on big loads or small; at high temperatures or low.

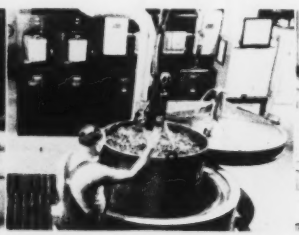
Second, what work will you be called upon to do in the future? With L&N equipment you'll be ready to meet the most exacting quality standards. You'll find it efficient for cost-cutting. You'll find it able to take the punishment of heavy loads, quick heating and round-the-clock use. With L&N furnaces you're ready . . . for today's *and* tomorrow's heat-treating problems.

For engineered job-fitting contact either our nearest office or 4957 Stenton Ave., Phila. 44, Pa.

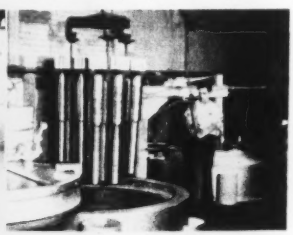
LEEDS & NORTHRUP

instruments • automatic controls • furnaces

Big production for small space with L&N furnaces is due to high ratio of net to gross load, to compact design and to thorough insulation. Furnaces are made in sizes for every part's heat treating need, from small at shop to large at plant.



With dense loads (as machine-gun clips shown here) Homo's streamlined heating passages, big heater-and blowers give fast, accurate, cost-cutting production.



With bulky parts Homo Furnace vertical construction, large size and ability to hold work either racked, stacked or on fixtures give ample capacity.

MILLER ELECTRIC

CUT MACHINING TIME FROM 2 HOURS to 1 HOUR and ELIMINATED WARPAGE

WITH GROUND AND POLISHED

STRESSPROOF®

SEVERELY COLD-WORKED, FURNACE-TREATED STEEL BARS

Arc Welder, made by Miller Electric Manufacturing Co., Appleton, Wis., uses STRESSPROOF in the generator shaft.

This 2¼" generator shaft, 19¼" long, must be drilled through its entire length, have both ends stepped down, and keyseated for 10¼". Ground accuracies are required for pressing on the armature. Drilling was a headache and the keyseating often resulted in severe warpage. It required two hours to finish one shaft.

Three different steels were tried before switching over to STRESSPROOF. When Ground and Polished STRESSPROOF was used, machining time was cut in half—one hour instead of two hours. Warpage was eliminated and the shaft itself was much stronger.

STRESSPROOF makes a better part at a lower cost.

STRESSPROOF has improved quality and lowered costs in hundreds of similar applications because of its unique combination of four qualities in-the-bar: (1) High Strength, double that of ordinary cold-finished shafting; (2) Machinability, fully 50% better than heat-treated alloys of the same strength; (3) Wearability, without case hardening; and (4) Minimum Warpage. STRESSPROOF is available in cold-drawn or ground and polished finish.

SEND FOR . . .
Free Engineering Bulletin
"New Economies in the Use of Steel Bars"

La Salle STEEL CO.

. . . the Most Complete Line of Carbon and Alloy Cold-Finished and Ground and Polished Bars in America.

La Salle Steel Co.
1414 150th Street
Hammond, Indiana

Please send me your STRESSPROOF Bulletin.

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State____

Look for the distinguishing darkened rollers.
Thousands of tiny steel balls hammer the metal . . . cold work each roller . . . put on an extra fatigue life . . . added ability to withstand shock and impact.

It's the SHOT-PEENED rollers that give your roller chain extra life!

. . . one of the extra-wear features you get with every LINK-BELT Roller Chain

POWER TRANSMISSION engineers and metallurgists agree—shot-peened rollers mean longer roller chain life. That's just one of the engineering extras you get with Link-Belt Precision Steel Roller Chain. Another is Link-Belt's exclusive lock-type bushing.

Remember, too, Link-Belt's rigid material selection and controlled heat treating assure chain uniformity . . . no weak members.

Link-Belt builds a complete line of roller chain—single or multiple widths in ⅜" through 3" pitch, and double pitch, 1" through 3". Submit your chain problems to the Link-Belt office near you.

No partial bearing here—bushing fits securely

Lock-type bushings increase ability to withstand severe operating conditions

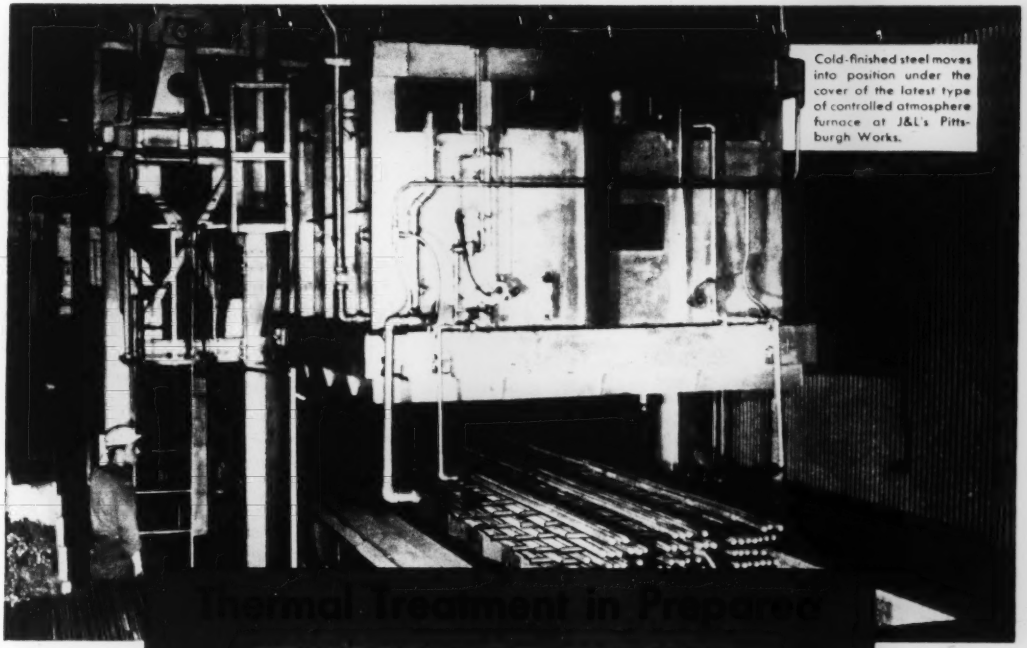
A special manufacturing process securely locks the inside sidebars on the bushing, preventing lateral movement of the sidebars and eliminating a common cause of stiff chains. This Link-Belt development is applied on roller chains through 1" pitch and double pitch roller chains through 2" pitch.

LINK-BELT

Precision Steel Roller Chain

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8; Springs (South Africa); Sydney (Australia). Offices, Factory Branch Stores and Distributors in Principal Cities. 12,055

Let J&L CARBON RESTORED Cold Finished Bars cut your production costs



Cold-finished steel moves into position under the cover of the latest type of controlled atmosphere furnace at J&L's Pittsburgh Works.

Thermal Treatment in Prepared ATMOSPHERE FURNACE

Saves you the cost of removing "Decarb"

Why incur the cost of removing "decarbed" surface from parts requiring high surface hardness? To eliminate these costs and lower your unit production cost, simply order J&L Cold-Finished Carbon Restored Bars.

This furnace is designed to permit other thermal treatments, such as annealing, normalizing, stress relieving and strain drawing. These treatments can be employed to improve machinability or to meet desired mechanical properties.

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PITTSBURGH 30, PA.

J&L STEEL

Jones & Laughlin Steel Corporation
404 Gateway Center, Pittsburgh 30, Pa.

☐ Without obligation please send me your booklet "Extra Services to Users of Cold Finished Steel."
☐ Please have your representative call.

NAME _____
TITLE _____
COMPANY _____
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SANDVIK SPRING STEEL'S

Double Accuracy

CUTS COSTS TWO WAYS

Here is how Sandvik's *double accuracy* will cut your costs.

1. It cuts rejects by being consistently within specified gauge.
2. Sandvik's greater precision brings gauge closer to *exact* size . . . gives you more parts per pound.

What's more, Sandvik steel's uniform physical characteristics from lot to lot means longer tool life plus better performance of the finished part.

For quality spring steel, check with Sandvik. Sandvik cold-rolled, high carbon strip steel is available:

- **Precision-rolled in thicknesses from .001"**
- **In straight carbon and alloy grades**
- **In special analyses for specific applications**
- **In more than 800 stock sizes**
- **Annealed, unannealed or hardened and tempered**
- **Polished bright, yellow or blue**
- **With square, round or dressed edges**

Phone, wire or write your nearest Sandvik office for further information or technical help.

SOME SANDVIK SPECIALTY STRIP STEELS—Steel for Textile Machine Parts • Band Saw Steels, Metal Band, Wood Band and Butcher Band • Camera Shutter Steel • Clock and Watch Spring Steels • Compressor Valve Steel • Doctor Blade Steel • Feeler Gauge Steel • Knife Steels • Razor Blade Steel • Reed Steels • Shock Absorber Steel • Sinker Steel • Spring Steels • Trowel Steel Vibrator Reed Steel, etc.

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1. Consistently within specified gauge
2. Closer to exact size

Sandvik Quality Steels

FREE!

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Write, on your letterhead, for your copy, today

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SS-74

STEEL

If Corrosion is a Problem, "Fastenings by HARPER *" is the Answer*

Is moisture a problem in the equipment you manufacture?

Are heat and abrasion factors in its life?

Do the fastenings you use corrode due to the action of chemical solutions?

Can fastenings add to the appearance of your product?

If your answer is "Yes" to any of these questions, you should learn more about "Fastenings by Harper."

The H. M. Harper Company is the world's largest exclusive producer of fastenings made of non-corrosive metals—brass, silicon bronze, naval bronze, Monel, nickel, aluminum and all stainless steels. Over 7,000 items are carried in stock. One source of supply assures you better service—one order to write—one account to keep—one bill to pay.

See the Harper distributor near you with stocks ready to fill your order. Consult with Harper metallurgists and engineers on any tough corrosion problem you may be facing.

THE H. M. HARPER COMPANY
8207 Lehigh Avenue, Morton Grove, Illinois

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SPECIALISTS
IN ALL
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METALS

$1\frac{1}{8}$"—7
18-8 Stainless Steel Nut

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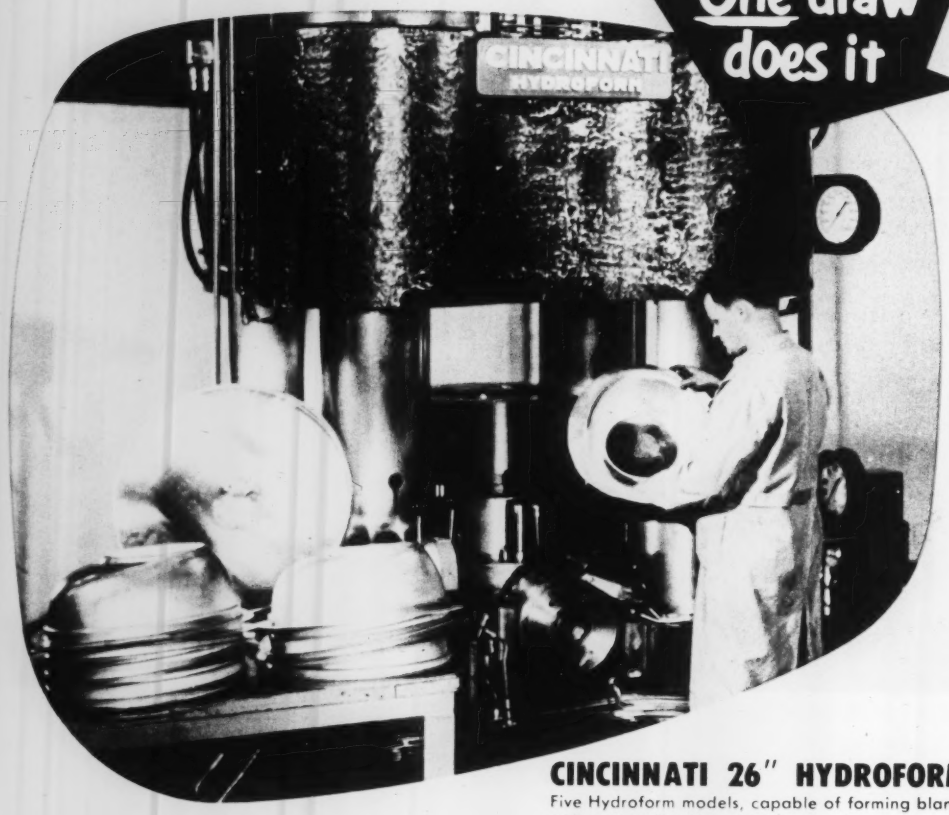
Castellated Brass Nut

$\frac{3}{8}$"—16 *Naval Bronze Jam Nut*

BRASS • SILICON BRONZE • NAVAL BRONZE • MONEL • ALUMINUM • STAINLESS STEEL

Hydroforming



CINCINNATI 26" HYDROFORM

Five Hydroform models, capable of forming blanks 12", 19", 23", 26" and 32" in diameter are available. Information on machines of larger capacity furnished on request.

Hydroform

THE CINCINNATI MILLING MACHINE CO.

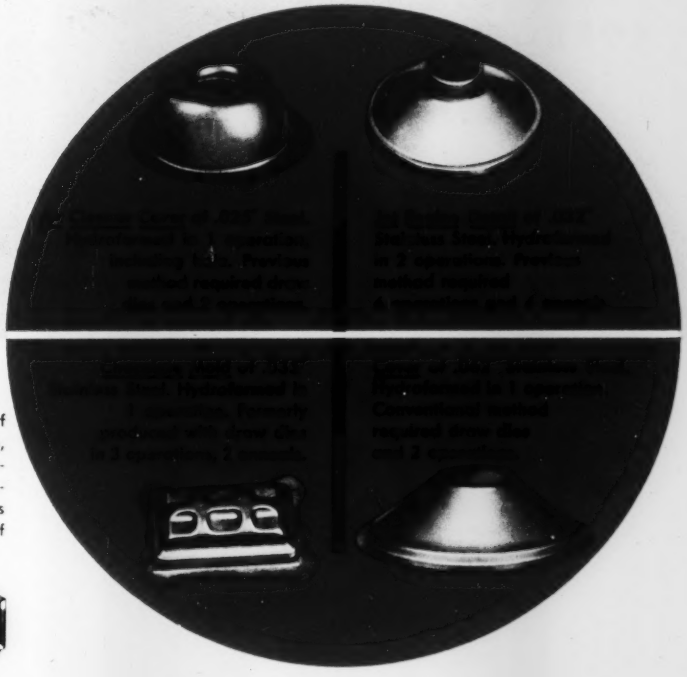
CINCINNATI 9, OHIO

One "hug" of the Cincinnati Hydroform produced the finished shape shown in the photo at left. The part, drawn to a depth of 8½" from a 25" dia. blank of .062" aluminum, formerly required five operations to produce.

Hydroforming makes possible the deep drawing of intricate shapes in far fewer operations than conventional practices allow. Many examples are on record where two, three—often more—operations have been saved. Most parts can be Hydroformed in a single draw. But where the shape of the part requires more than one operation, two or more blanks can be stacked and preformed in one stroke. The Hydroform can be tooled to trim, pierce and form light gauge metals in the same operation.

The savings of operations by Hydroforming is but *one* major advantage. The simple tooling required reduces tool costs up to 90%. Practically any shape, from a wide variety of materials up to ⅜" thickness, can be Hydroformed. Part quality is materially improved. Springback, thin-out and spot stresses are greatly reduced or eliminated. Surface finish of the material is unimpaired.

Investigate Hydroforming now. It will change your thinking on deep drawing and forming. Consult your nearest Cincinnati Milling Machine Co. representative for detailed information on this revolutionary metal forming process.



WRITE FOR NEW HYDROFORM BULLETIN

For a complete description of Hydroforming—tooling details, operation, examples of Hydroformed parts, machine dimensions, and general specifications —write for your free copy of Bulletin M-1759.

CINCINNATI

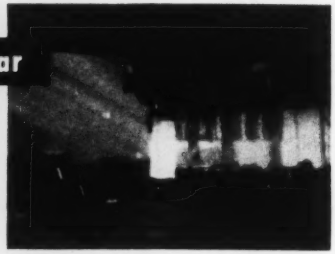
How HAYNES Alloys Combat

WEAR...

HEAT...

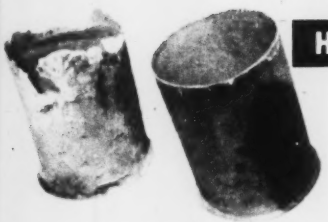
CORROSION

Wear

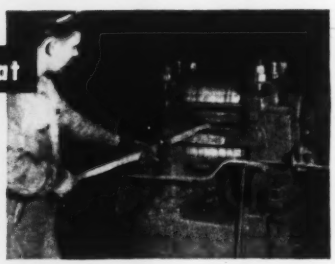


10 Years' Service Wire-straightening rolls cast from HAYNES STELLITE alloy are still in good shape after 10 years of service, despite severe abrasion. Steel rolls wore out every three or four months.

Saves $10,000 a Year One steel company saves $10,000 a year in down time by hard-facing tong bits with HAYNES STELLITE alloy No. 6. Steel bits last one hour; hard-faced bits last up to 50 hours.

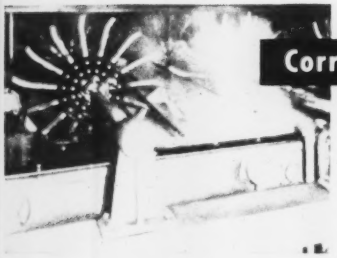


Heat

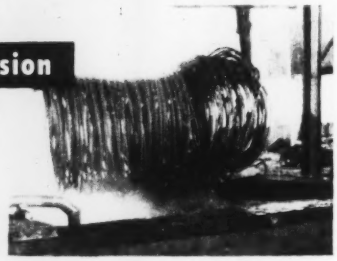


Resist 1800 F. Used for pack annealing metal parts, the steel container at the left disintegrated in 20 hours. The MULTIMET alloy container (right) stood up for 2½ years and was still good for more of this tough service.

Produce 300,000 Pieces These forging rolls, hard-faced with HASTELLOY alloy C, produce five times as many brake shoe keys as unprotected steel rolls. The rolls reach a temperature of 900 deg. F., and the work 1700 deg. F.



Corrosion



4 to 1 Life in Hot H_2SO_4 HASTELLOY alloy pebbles show no loss in cross section after carrying steel tubing in and out of a pickling solution for over a year. Other materials failed in less than three months.

Corrosion Rate Only 0.007 in. per yr. This pickling assembly, made from HASTELLOY alloy B plate, operates in an agitated, heated solution of sulphuric acid. Corrosion rate is only 0.002 to 0.007 in. per year.

For descriptive literature on any of the HAYNES alloys produced, mentioned, or on the job help in solving your problems of wear, heat or corrosion, write or phone the nearest District Office.

HAYNES

TRADE MARK

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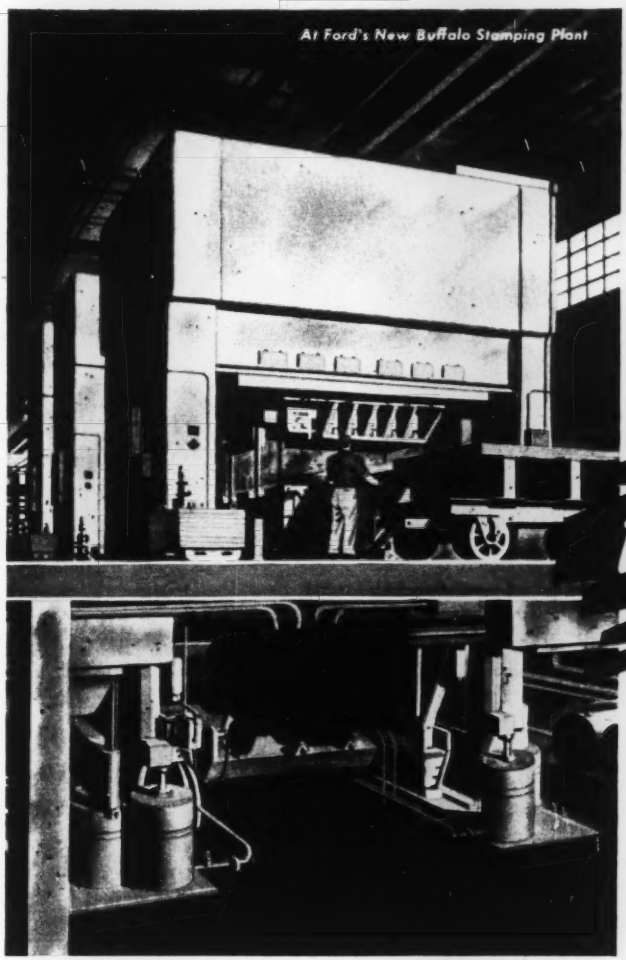

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Adjustable-speed DIRECT-CONNECTED MOTORS

help set

WORLD PRODUCTION RECORD

on Triple-Action Presses

One of five huge body presses at Ford Motor Company's Buffalo Stamping Plant with 500-horsepower Reliance adjustable-speed press drive motor.

Adjustable speeds by the Reliance V•S System have answered the challenge of establishing and maintaining record production from mammoth, triple-action automobile body presses at Ford Motor Company's new Buffalo Stamping Plant. Flywheel and clutch are eliminated. Starting, stopping and reversing are accomplished electrically. Adjustable inching speed is available as required from direct-connected, 500-horsepower Reliance motors—the largest ever placed on such presses. Other important advantages of these drives by Reliance include the saving of a substantial amount of steel that was formerly scrapped and a reduction in die replacement costs. Contact your nearest Reliance Sales Representative for further facts on drives engineered by Reliance—for presses or any other type of production machinery.

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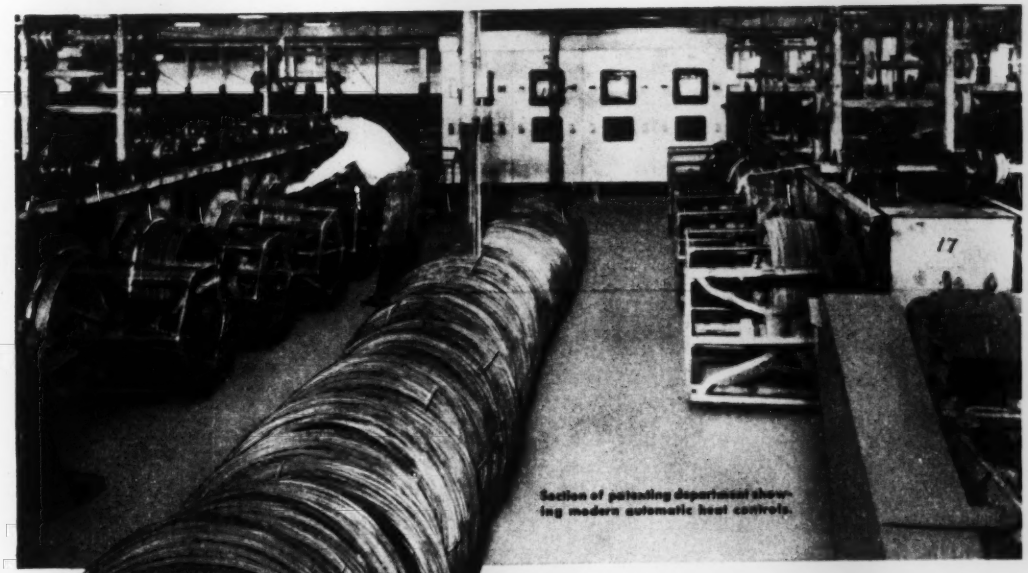
Public Auditorium

Sept. 30, Oct. 1, 2 and 3



Section of patenting department showing modern automatic heat controls.

wire control *to save you money!*

• The accuracy with which your wire specifications are met, *and held,* quite naturally has an important bearing on the cost, speed and quality of your production. That's why you can profit by National-Standard's facilities and exceptional experience in producing fine wire of many metals and alloys for exacting needs.

Here, all phases of wire processing . . . drawing, cleaning, heat treating, plating, finishing . . . are controlled to a degree and accuracy never exceeded, not often equalled. It's a firmly rooted National-Standard policy that can save you time and money.

Remember, too, another National-Standard policy that can work to your advantage—highly qualified engineering service in the development and application of special wire to solve special problems. As always, it's yours for the asking.

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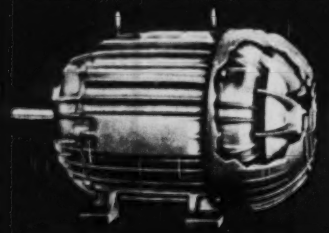
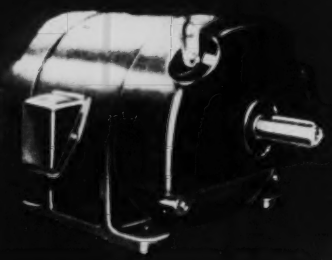
DIVISIONS OF NATIONAL-STANDARD CO.

ATHENIA STEEL.. *Clifton, N. J.*	Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL-STANDARD.. *Niles, Mich.*	Tire Wire, Stainless, Fabricated Braids and Tape
REYNOLDS WIRE.. *Dixon, Illinois*	Industrial Wire Cloth
WAGNER LITHO MACHINERY.. *Jersey City, N. J.*	Metal Decorating Equipment
WORCESTER WIRE WORKS.. *Worcester, Mass.*	Round and Shaped Steel Wire, Small Sizes



"Sealedpower" totally-enclosed squirrel-cage motor. Cooled and cleaned by exterior fan-driven air blast directed along radiating fins. 3 to 1 to 125 hp. Explosion-proof, 20 to 1 to 125 hp.



Squirrel-cage splash-proof Form BA. Has corrosion-resistant covers which prevent entrance of splashing liquids.

Mill motor, W600 Series, DC. Conforms in all respects to AISE standards. Offers more power without an increase in the frame size.

Here's motor ruggedness you can bank on!

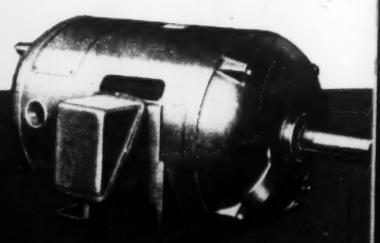
. . . the

Available in NEMA frames 203 through 505. Open drip-proof . . . splashproof . . . with NEMA D flange or C face . . . horizontal . . . vertical . . . round frame.

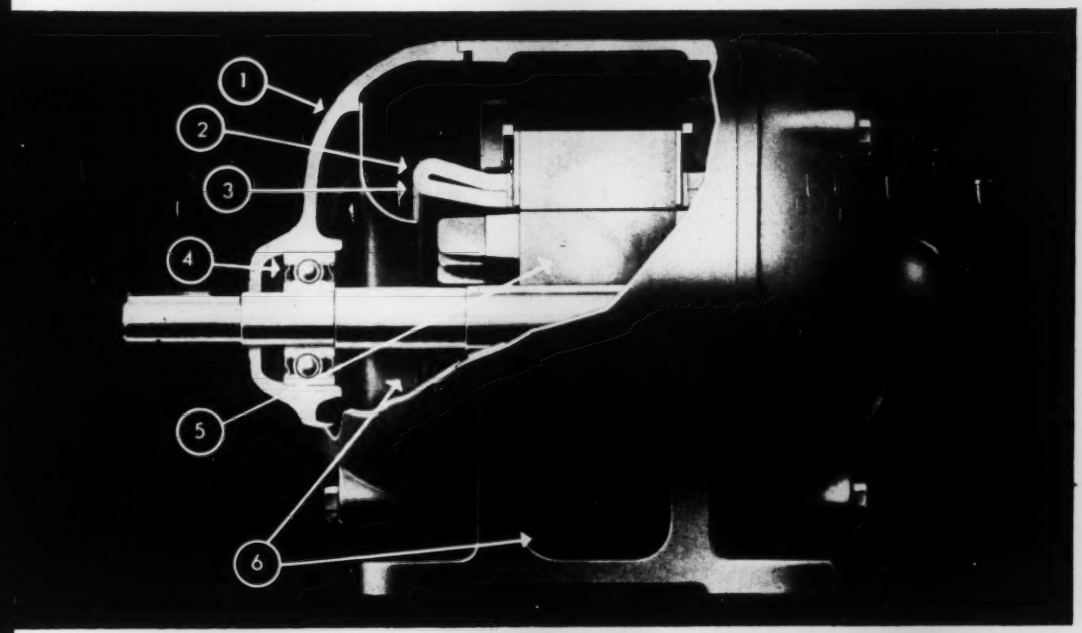
. . . Also available with the Crocker-Wheeler brake. This is a motor that has given thorough satisfaction in the widest variety of applications, from textile machinery and machine tool drives, to air conditioning service in many large modern buildings. For details contact your local Elliott representative or write Elliott Company, Jeannette, Pa.

W2-18

. . . with the ELLIOTT CROCKER-WHEELER complete motor line, you can meet 'most any integral motor need!



Wound-rotor protected type Form BW. For slow, smooth acceleration, high starting torque with low starting current, or variable speed. Drip-proof, splash-proof, 1 to 200 hp.



ELLIOTT CROCKER-WHEELER *Squirrel-cage* INDUCTION MOTOR

Here is a continuous-duty general purpose motor soundly engineered right up to the Crocker-Wheeler standard, with every qualification for premium performance and extra long life. Check over these features:

1. *Rigid gray iron end shields* for solid bearing support and permanent alignment.

2. *Vinylastic wire* thoroughly impregnated and baked, on all stators.

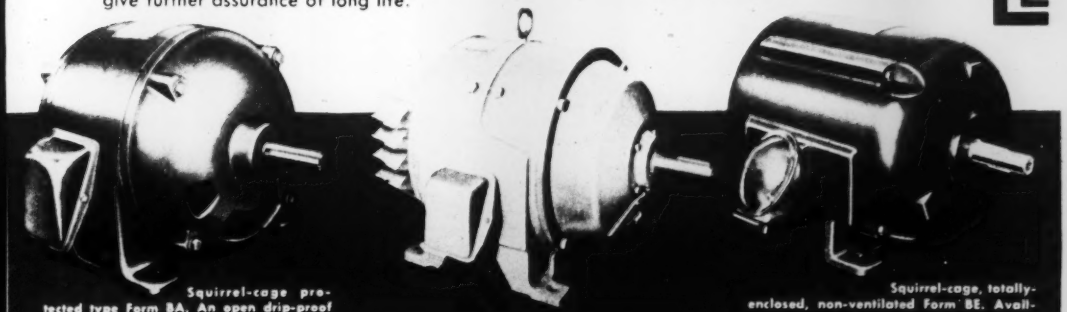
3. *Corded end turns* for strength and permanence and *phase-to-phase insulation* to give further assurance of long life.

4. *Sealed prelubricated bearings* needing no attention in years of service.

5. *Alucast rotors* practically indestructible —bars, fans and end rings are one solid piece.

6. *Dual ventilation* from both ends of rotor, discharged out each side of the frame.

ELLIOTT COMPANY
Crocker-Wheeler Division



Squirrel-cage protected type Form BA. An open drip-proof motor for general purpose use. It is available in wide modifications to meet a variety of conditions.

DC drip-proof and drip-proof-protected types. Form F, in ratings to 7½ hp. Form H, in 10 to 200 hp.

Squirrel-cage, totally-enclosed, non-ventilated Form BE. Available up to and including 3 hp at 1800 rpm, for applications requiring protection against dust, fumes, moisture.

"THERE SHE BLOWS"

From one end of the oil country to the other, McKay Chain is at work helping hit pay sands. But then—you'll find McKay Chain everywhere doing the useful jobs of lifting, hauling, rigging, tying, spinning and other material and power transfer applications.

In every industry—there is a McKAY CHAIN FOR EVERY USE . . . no job is too big, none too small!

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McKAY CHAIN *for Every Use*

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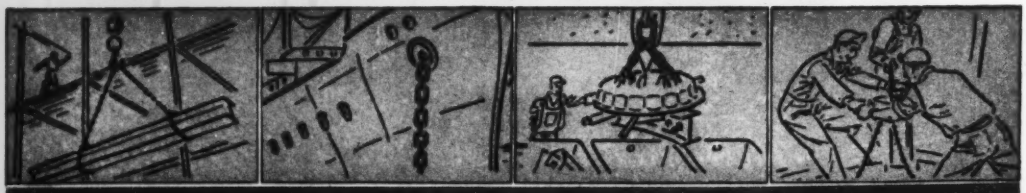
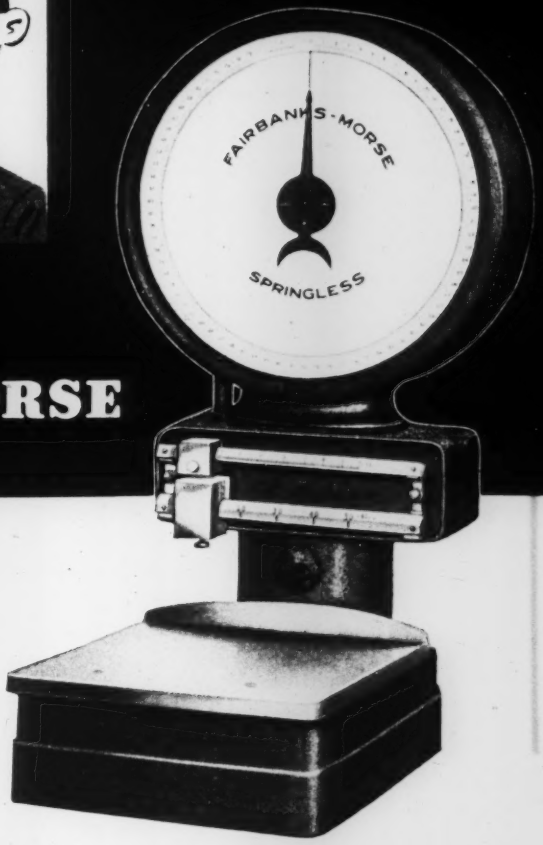


WITH

FAIRBANKS-MORSE



You speed your weighing operations with Fairbanks-Morse Bench Dial Scales. And that means there are no "bottlenecks" to hold up production all through your plant. Here's why:

With Fairbanks-Morse Bench Dial Scales, weights are read right at the point of the indicator. No time-wasting mental calculations are needed. You can weigh as fast as material can be moved on and off the scale platform. And, easy-to-read charts plus elimination of mental calculations reduce the possibility of human error . . . stop profit-eating weighing losses.

To eliminate "waste time" weighing in your operations, consult your Fairbanks-Morse weighing expert. Or, if you prefer, write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

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a name worth remembering

SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • PUMPS
HOME WATER SERVICE EQUIPMENT • RAIL CARS • FARM MACHINERY • MAGNETOS

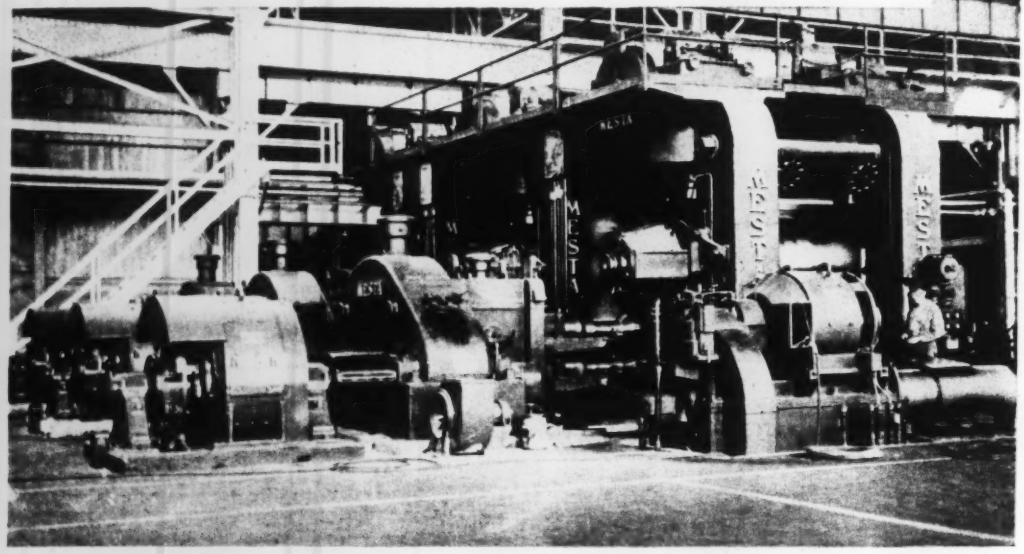
MAKE A "TOOTHSOME" SAVING—protect reduction gears with TEXACO MEROPA LUBRICANT

There's no better protection for the teeth of your enclosed reduction gears than *Texaco Meropa Lubricant*. It's designed to carry the heaviest loads . . . ward off wear and corrosion. Gears last longer, you make a "toothsome" saving on maintenance costs.

Texaco Meropa Lubricant is strongly oxidation-resistant. It does not thicken or foam. It will not separate in service, storage, centrifuging or in central pressure systems. *Texaco Meropa Lubricant* protects bearings as well as gears.

To save on maintenance costs for oil film bearings on back-up rolls, lubricate with *Texaco Regal Oil*. This heavy-duty, turbine-quality oil resists oxidation and sludging. Keeps systems clean, bearings fully protected. On open gears use *Texaco Crater X Fluid*.

A Texaco Lubrication Engineer will gladly work with you to reduce costs throughout your mill. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Meropa Lubricants
FOR STEEL MILL GEAR DRIVES

Faithfully yours 50 *for Fifty Years*

TUNE IN: On television—the TEXACO STAR THEATER starring MILTON BERLE. See newspaper for time and station.

September 8, 1952

Politics and Price Controls

Odds are against any widespread price decontrol before the November elections. Price Administrator Tighe E. Woods on his 30-day kitchen tour to interview the nation's housewives is actually out on a junket to appraise the political implications of the regulations. If he finds that they'll lose the Democrats votes, out the curbs will go in October. But he's not likely to find that because he's not interviewing business men, who are mostly opposed to the curbs, but the more numerous housewives who like controls. So, we'll probably have the regulations until they officially expire next Apr. 30.

Jokers in Decontrol

Jokers are turning up in two regulations which appear to point toward greater decontrol in prices and materials. Although late last week industry men were still trying to figure out exactly where the pass-through price order will put them, the consensus was that OPS had come up with sleight-of-hand which will force business people to palm part of the cost increases themselves. OPS intimates that it will do nothing about those complaints. NPA has also been up to some legerdemain at least about one aspect of decontrol. Late last month it partly freed conversion steel from the confines of CMP. Now, new amendments come up (p. 64) that put some restrictions back on.

Less Power for Aluminum

A dark shadow could mar what was developing into a bright picture on aluminum supplies. The Bonneville Power Authority in the Pacific Northwest must curtail power generation because the Columbia river is low. Kaiser Aluminum & Chemical Corp. and Aluminum Co. of America both will be affected. Already lost is about 10 million pounds of aluminum because of the power scarcity, and 119 million pounds will be lost all-told if the shortage persists until the end of the year.

Flying High: Aircraft Sales

The aircraft business should be booming for several years to come because of high defense spending (p. 57). Fifteen of the major aircraft companies which get about half of all military aircraft orders can expect to have an aggregate business volume of some $8 billion a year for the next several years. That would equal in dollars the peak World War II totals.

Failure To Deliver

Many small subcontractors of defense business, especially in New England, have suffered hardship because of failure to receive payment for work performed. That's due to defaults by the prime contractors. An increasing number of instances are arising where primes can't meet their defense contracts, particularly on quality. When that

Production Engineering News—p. 85 The Market Outlook—p. 157

happens, the prime doesn't get paid and, of course, neither does the sub.

New Jobs for Three

Three significant personnel changes are in the works for government agencies. Acting Defense Mobilizer John R. Steelman will step down soon. His successor: Henry H. Fowler who already heads NPA and DPA. The Office of Defense Mobilization may stay intact, but the other two will probably merge. Hugh Dean, retired vice president in charge of manufacturing for General Motors Corp., takes over Clay Bedford's job as special assistant to Defense Secretary Lovett in charge of production. The change could signify the coming emphasis on production rather than planning. John Horne, deputy administrator of Small Defense Plants Administration, takes over the administrator's job now that Telford Taylor is leaving. Mr. Horne is close to the Democratic nominee for vice president, Sen. John Sparkman, and his appointment indicates that SDPA will get an increasingly political tone.

The Senate for Three Industrialists

Three bonafide manufacturers are now members of the Senate: Homer E. Capehart of Indiana, Ralph E. Flanders of Vermont and William A. Purtell of Connecticut, the last just appointed to fill the unexpired term of the late Brien McMahon. All three are Republicians.

Tool and Die Troubles

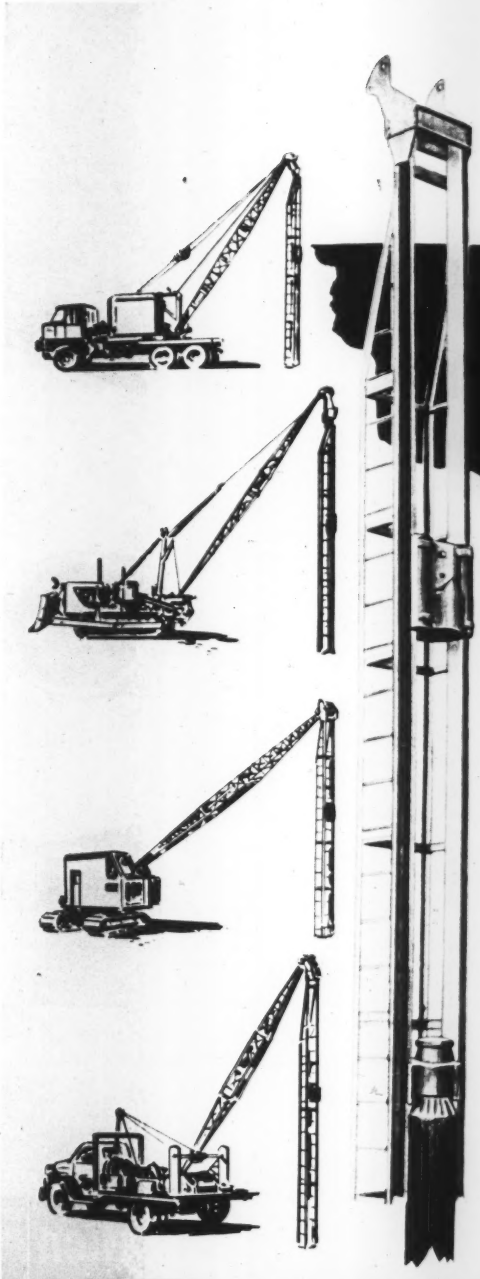
Trouble is brewing in the tool and die apprentice arrangements. WSB a year ago turned down a wage boost for tool and die men, and at the time many union locals threatened to stop permitting training programs in retaliation. That died down, but now some tool and die men are walking out in protest when companies seek to upgrade apprentices and make them regular journeymen workers. Briggs Mfg. Co. encountered that problem last week even though it has a contract provision permitting upgrading. Many companies don't have such provisions, and even more serious difficulties are anticipated in coming months.

Straws in the Wind

A tailored price regulation on used rails designed to encourage relaying of used rails rather than selling them as rerollers or for melting scrap is in the works at OPS . . . Copper wire and brass mill products manufacturers will not have to recalculate their prices to reflect variations in the cost of foreign copper starting Oct. 1 and for an indefinite period thereafter . . . Second-quality steel is still a controlled material despite a statement to the contrary in CMP-4B instruction sheets for the fourth quarter .

What Industry Is Doing

STEEL introduces the new weekly steel price index of the Bureau of Labor Statistics (opposite p. 28) . . . Aluminum Co. of America may seek a partner to help finance its $700-million Alaskan project (p. 57) . . . Makers of plastics machinery find that both domestic and foreign demand is rising (p. 59) . . . Builders are nailing together another over-a-million-housing year (p. 60) . . . Gearmakers are getting their teeth into defense contracts and the ndustry is humming (p. 61).



The story behind this PILE DRIVER

LEWIS ENGINEERING SOLVES ANOTHER DESIGN AND FABRICATION PROBLEM

Construction men wanted lightweight pile driving leads that could be used at long radius on light capacity equipment. None were available. Existing leads, which weighed about 2500 pounds, put too much dead weight on the boom and limited the hammer size.

The problem was presented to us. Our answer was a set of strong, durable leads **weighing 1600 pounds and adaptable to any standard crane boom.** Because of their light weight, these **LEWIS** designed and fabricated leads permitted the use of a 2500-pound hammer on any crane having a capacity of **2 tons or more.**

Today, **LEWIS** leads are specified as original equipment.

This story is another example of our capabilities. We are ready to apply our engineering and fabricating facilities to your problems. Let our engineers discuss your particular needs. There is no obligation . . . and **we probably can save you time and money.**

783-LW

LEWIS

THE LEWIS WELDING & ENGINEERING CORPORATION

15 Interstate St. • Bedford, Ohio

Keep these shapes in mind

It will pay you to keep in mind the many advantages of special-shaped Armco Steel Tubing when you design or redesign your products. Tubing is pleasing to the eye. It may be the means of giving your product that extra "sales appeal."

Chances are good we can supply this mechanical tubing in any shape you require. Getting made-to-order shapes can help you eliminate or greatly reduce many costly fabricating operations. It also helps step up production.

Besides these shop savings, tubular parts give your products the most efficient section for structural requirements under many types of loading conditions.

This means lightweight, high-strength products at low cost.

RANGE OF SIZES

When bending, flanging, expanding, beading, upsetting or swaging operations are necessary, you'll find Armco Tubing will do all that you ask of it. Sizes range from $\frac{1}{4}$" to 3" O.D., wall thicknesses from .028 to .083.

Send for catalogs on Armco Steel Mechanical Tubing. A helpful new booklet tells "How to Fabricate Armco Steel Tubing"—gives you all the details you need. Just fill in the handy coupon, attach it to your company letterhead, and mail it today.

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ARMCO STEEL CORPORATION
4262 Curtis Street, Middletown, Ohio

☐ Catalog on Armco Steel Mechanical Tubing.
☐ "How to Fabricate Armco Steel Tubing.

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Company .....
Street .....
City ..... Zone ..... State .....

Armco Steel Corporation

4262 Curtis Street, Middletown, Ohio
Plants and Sales Offices from Coast to Coast

We're Masters, Not Slaves

Last April at the Spring Manufacturing Conference of the American Management Association an observant educator delivered an address entitled "Industry's Amazing Oversight." Following the conference, the text of his address was published in whole or in part in numerous business publications. The more that readers studied the text, the more they realized that the author had come up with a thought-provoking idea.

The author is Erwin H. Schell, professor of business engineering administration, Massachusetts Institute of Technology. The "amazing oversight" to which he refers in the title of his address is the failure of practically everybody to recognize the importance of a rather universal condition in the United States which he calls "machine management." He contends that contrary to Karl Marx, who pictured man as the slave of the machine, "today man as never before in his work, his home, his play is the acknowledged master of the mechanisms he employs."

These mechanisms include many of the aids to living that today are commonplace in American life—refrigeration, deep freeze, radio, television, automobile, power lawnmower, electric shaver, vacuum cleaner, air conditioning, automatic washing machine, clothes dryer, mechanical ironer, electric fan, electric space heater, toaster, percolator, hot water heater, automatic house heating furnace, garbage disposal unit, mechanical dishwasher, and many others. One doesn't have to be a millionaire to enjoy the benefits of many of these aids. In fact, millions of our people in all walks of life, can qualify as being proficient in machine management by virtue of their mastery over one or more of these mechanical appliances.

This mastery goes a long way toward satisfying one of man's fundamental desires. The normal individual has hopes and aspirations. He wants recognition of his contributions to man's progress. Throughout the centuries, what reward is more attractive and gratifying than the prestige and satisfaction that comes from mastery of machines?

In the years ahead, there will be generations of persons who will be much more adept in machine management than are today's contemporaries. Their mastery of machines may write a bright new chapter in the history of human relations.

E. L. Shaner

EDITOR-IN-CHIEF

A LIBERAL EDUCATION: Anyone who reads the so-called labor press with any degree of regularity is bound to notice the marked difference between the opinions expressed in the official organs of CIO and AFL and those set forth in independent labor publications.

On three points these two types of journals

are in direct conflict. CIO and AFL official newspapers harp constantly on the "excessive" profits of industry. A corporation's gain in profits is condemned; a decline in earnings is conveniently ignored. The independent papers recognize profits as desirable in that they make for stability of employment. The official union organs run a steady barrage of demagogic condemnation of the Taft-Hartley Act as a "slave labor" law. The independents—and particularly the State Labor News of Columbus, O.—are doing an outstanding job in demonstrating how TH protects union members. The official organs constantly seek new excuses for exciting the hatred of employees against employers; the independents invariably stress the common bonds of interest which should prompt employees and employers to co-operate.

Studying these scores of "official" and independent "labor" papers is a liberal education.

* * *

OUR PROBLEM OF GOLD: Late last week, prior to flying to Mexico City to attend this week's meeting of the governors of the World Bank and International Monetary Fund, Secretary of the Treasury Snyder told a news conference that the United States is not going to raise or lower the price of its gold. He gave rather convincing reasons to support this pronouncement.

Under present circumstances, few informed persons will doubt Mr. Snyder's sincerity in making this statement. However, monetary specialists who advocate a return to the redeemable gold standard (of whom there are a considerable number) are going to regard Mr. Snyder's statement with intuitive distrust. They remember all too vividly that several highly placed British statesmen reiterated categorically time and again that no devaluation of the pound was contemplated right up to the moment when it was debased in 1949.

We're due to hear much argument for the return to the gold standard in the months ahead.

* * *

WORLD TRADE PROBLEM: Historically, foreign trade has figured somewhat lightly in United States economy. Exports seldom exceed 10 per cent of the national income. However, today's situation, in which our country is thrust into the unaccustomed role of world leader, necessitates a completely new appraisal of our attitude toward world trade. We are forced to adjust our old free-trade versus protective-tariff discussions to the realities of our new role in world affairs.

Right now the gap between our heavy exports and light imports (p. 69) is unfortunate from many angles. In considering means of striking a more satisfactory balance, attention naturally gravitates to the growing need of American industry for increasing imports of raw materials from foreign sources. We have a hunch that a thorough follow-through on the ambitious Paley report might reveal practical ways of expanding the imports of materials we need urgently.

* * *

FOR GOOD P O SERVICE: Every metalworking establishment relies heavily upon the services of the United States Post Office. Recently there have been charges from many quarters that the service has deteriorated. Current complaints go far beyond the criticism that was provoked by Postmaster General Donaldson's service-curtailment order of Apr. 17, 1950, which cut mail deliveries in some areas to one-a-day.

Beefs are not confined to customers of the postal service. A violent critic is William C. Doherty, president of the 100,000-member National Association of Letter Carriers. He charges that postal inspectors are engaged in a reign of terror against postal employees who "dare to tell the truth about poor mail service." He demands that a new postmaster general be appointed to suceed Mr. Donaldson.

Laymen are not competent to judge the merit of these charges but as taxpayers and customers they are justified in demanding that efficient postal service be restored promptly.

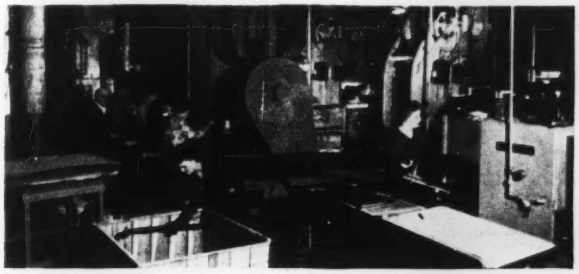
* * *

FLEET BREAKS RECORDS: Among our readers are many executives in Lower Lake cities whose office windows afford a view of lake and harbor. This year they are seeing numerous new vessels in the ore fleet. Some of them present a novel silhouette to veteran lake habitues. Stacks are near amidship, or they may be ornamental instead of utilitarian.

More important than appearance is the frequency with which the newcomers are breaking records. Every week one or more new vessels either cuts the running time between ports or carries a heavier tonnage than has been transported heretofore. The fleet is doing a magnificent job of trying to make up for the time lost during the strike.

NEW MULTI-OPERATION PRESSES AND LARGE-SCALE PRODUCTION METHODS SAVE YOU TIME AND MONEY AT Firestone

This high speed synchronized automatic press clicks out 2,600 large size blanks per hour at Firestone Steel Products. This low-cost production saves you money . . . assures on-schedule deliveries.

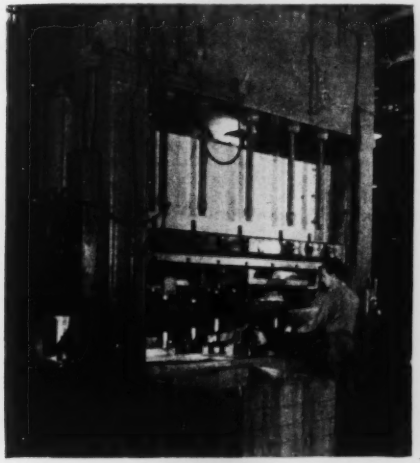


Assembly operations are closely integrated with presses at Firestone. As many as four operations are handled at one time on the new multiple-operating presses in the background.

Fast, efficient, straight-line methods save time and handling at Firestone. Parts move from presses on rollers on overhead conveyors to next operation.

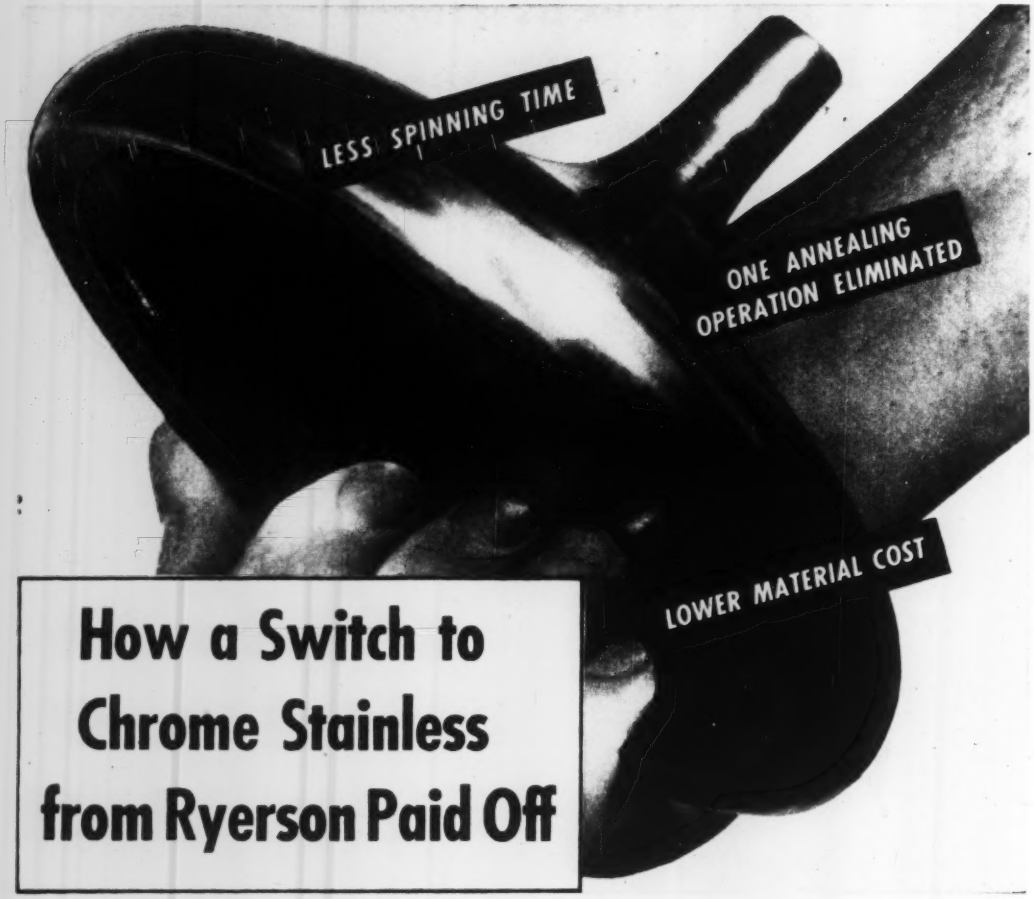
● Latest-type heavy tonnage presses and new processing, finishing and assembly lines make it possible for Firestone to deliver your defense sub-contracts on schedule. Firestone's modernized metal fabricating plants are geared for fast, low-cost production of those heavy, large-size stampings and assemblies now so badly needed for aircraft and ordnance components.

● In setting up a metal stamping contract, Firestone thoroughly analyzes the manufacturing procedure to reduce every controllable cost factor to the minimum. For complete cost analysis on stainless steel, carbon steel and aluminum stampings and sub assemblies, wire or phone Firestone Steel Products, Metal Stampings Division, Akron 1, Ohio.



One of the huge multiple-die forming presses recently installed at Firestone for making jet-engine components and parts for tanks.

Copyright, 1952, Firestone Steel Products Co.



How a Switch to Chrome Stainless from Ryerson Paid Off

Here's how a Ryerson customer kept his business going when NPA Order M-80 cut off his supply of nickel-bearing stainless. This manufacturer was turning out vacuum tops for coffee dispensers. He was using Type 305 nickel-bearing stainless in his product—thought 305 was the only steel for the job. Restrictions on nickel meant discontinuing production or finding an alternate material.

In his search for an alternate, our customer tried Allegheny Type 430 straight chrome stainless from Ryerson stocks. Results were excellent. The straight chrome steel proved more than just acceptable—it did the job in less time, for less money. Because Type 430 work hardens less rapidly, spinning time was substantially reduced and an annealing operation eliminated. And Type 430 satisfactorily met the finish requirements while costing considerably less than the Type 305 it replaced.

• • •

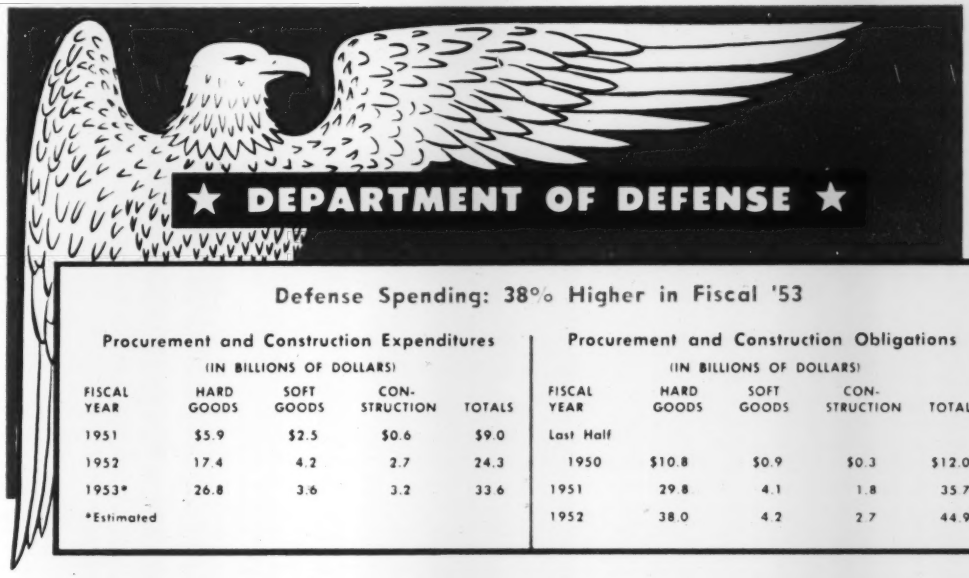
Perhaps Type 430 or some other straight chrome stainless can solve a problem for you. Only a thorough investigation will tell. We are prepared to help you make that investigation—our staff of stainless specialists is at your service. And we are able to supply the needed steel—our stocks of straight chrome types are the nation's largest and most diversified. Since relief from the nickel shortage is still not in sight, we suggest you act now. Call your nearby Ryerson plant for quick action.

PRINCIPAL PRODUCTS: CARBON, ALLOY & STAINLESS STEELS—BARS, STRUCTURALS, PLATES, SHEETS, TUBING, MACHINERY & TOOLS, ETC.

RYERSON STEEL

RYERSON CERTIFIED STEELS®

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE



Defense Spending: 38% Higher in Fiscal '53

Procurement and Construction Expenditures

(IN BILLIONS OF DOLLARS)

FISCAL YEAR	HARD GOODS	SOFT GOODS	CONSTRUCTION	TOTALS
1951	$5.9	$2.5	$0.6	$9.0
1952	17.4	4.2	2.7	24.3
1953*	26.8	3.6	3.2	33.6

*Estimated

Procurement and Construction Obligations

(IN BILLIONS OF DOLLARS)

FISCAL YEAR	HARD GOODS	SOFT GOODS	CONSTRUCTION	TOTALS
Last Half 1950	$10.8	$0.9	$0.3	$12.0
1951	29.8	4.1	1.8	35.7
1952	38.0	4.2	2.7	44.9

Defense Stimulant: Bigger Dose

High military contract obligations now mean a firming of economic pulse through 1953 and 1954. Materials and labor tourniquet should be eased

DEFENSE SPENDING will pump oxygen into the body economic for years to come—no matter which presidential medico takes over after the November election.

Procurement spending by the Defense Department in fiscal 1953 should be about $33.6 billion, a breath-taking 38 per cent above fiscal 1952's $24.3 billion—and that despite the temporary asphyxiation of defense production caused by the steel strike.

Prognosis—Hard as it is to predict exactly what defense spending will amount to after next June 30 (the congressional pulse and shifts in production schedules can change with the political weather), a sound prognosis is found in the procurement-obligation figure in the table above.

About 75 per cent of the $33.6 billion will go into hard goods: Aircraft, ships, tanks, weapons and ammunition, production equipment, electronics and other items ticketed for the robust metalworking industry. About 10 per cent will be compressed into construction: Steel, copper and aluminum in all its forms. The remaining 15 per cent will be pumped into soft goods: Clothing, subsistence and petroleum.

Stimulant?—How much of the lifeblood of the procurement dollar has trickled away through inflation? Defense officials figure the loss in purchasing power at about 15 per cent for the period from the start of the Korean War (June 27, 1950) to the present. The 15 per cent figure does not include the inflation still to follow the steel wage settlement.

The Defense Department has three types of funds to draw upon: 1. Annual or one-year funds that must be obligated within a year after appropriation. 2. No-year funds, constituting the bulk of procurement money, available without time limit until spent. 3. Multiple-year funds, so far confined to two-year funds, allowing two years for obligating, another two for liquidating the obligations.

Fluoroscope — Defense obligations, as shown by the table on this page, reveal that obligations of $44.9 billion in fiscal '52 and $35.7 billion in fiscal '51 top by $20.6 billion and $26.7 billion the actual procurement expenditures in those two years.

The fluoroscopic image cast by those heady figures plus a diet of substantial defense appropriations in the years ahead assure a thriving future on disbursement dollars.

Alcoa May Seek Partner

Big user of aluminum might help finance $700-million Alaskan project

WANTED: A business partner to help finance a $700 million project.

That's what Aluminum Co. of America has in mind to help with the finances at its proposed new aluminum plant at Skagway, Alaska. A big user of aluminum would

be the most logical prospect for the role.

The Field—Aircraft assemblers and parts makers are big users. Is the industry or any company in it big enough and stable enough to go into such an undertaking? The auto industry is a large consumer and eventually will use even more of the light metal. Is the Alaskan project so far away that freight costs on aluminum would be prohibitive for any automotive company? Aluminum is going in increasing volume to makers of oil country goods. Will anyone in that field welcome an alliance with the nation's largest aluminum producer?

Alcoa will try other avenues of finance in case the partnership road is blocked. It would not be too enthusiastic about government monetary support, but it will seek fast amortization of a project which still has a lot of potential pitfalls to bypass.

It has yet to obtain Canada's permission to use water from the Yukon river, and it must get an act from the U. S. Congress permitting it to use 20,000 acres of land.

In Stages—The total $700 million won't be needed at once, for Alcoa plans to build only enough facilities at first about $400 million worth to turn out 200,000 tons a year. Another $300 million will eventually be required to double that capacity.

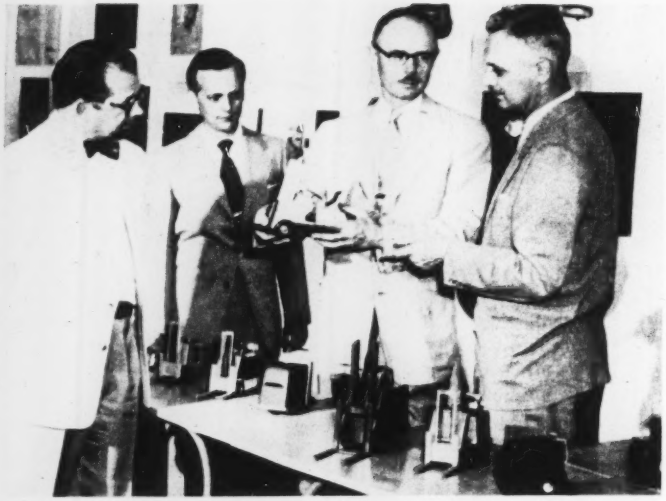
As of now, detailed construction plans are not yet finalized. Road work into the project is already going on, and some plant construction can begin next spring if all goes well.

DPA Charts Materials Supplies

Aluminum and copper are "in approximate balance" between supply and essential military and civilian demand says the Defense Production Administration in its "List of Basic Materials and Alternates," issue No. 8.

The LBMA, published bimonthly by DPA, shows the relative availability of nearly 400 basic materials and suggests alternates for those that are in critical supply. Materials are listed in three groups: Group I, in short supply with a star indicating those most critical; Group II, in approximate balance; and Group III, materials in fair to good supply.

In the latest listing, aluminum, copper and magnesium eased from Group I to Group II. The star was dropped from beryllium and selenium but they remain in Group I. In ferrous forms and shapes, plates received a most critical rating. Sheet and strip (both cold and hot-rolled) moved to Group I from Group II and pig iron (other than low-phosphorous) moved from Group III to Group II. Galvanized welded pipe (3 inches and under) moved from Group I to Group II, indicating an easing. There were 59 changes toward easier supply in chemicals with 30 chemicals being dropped from the list entirely.



An Interesting Study in Art

Officials of Mercury Mfg. Co., makers of electric industrial trucks and tractor-trailer trains, and faculty of the School of the Art Institute of Chicago look at one of the model trucks on display during the school's Annual Industrial Design Exhibit. Students produce the miniatures after visiting industrial plants for first-hand information. Industry co-operates by supplying teaching talent

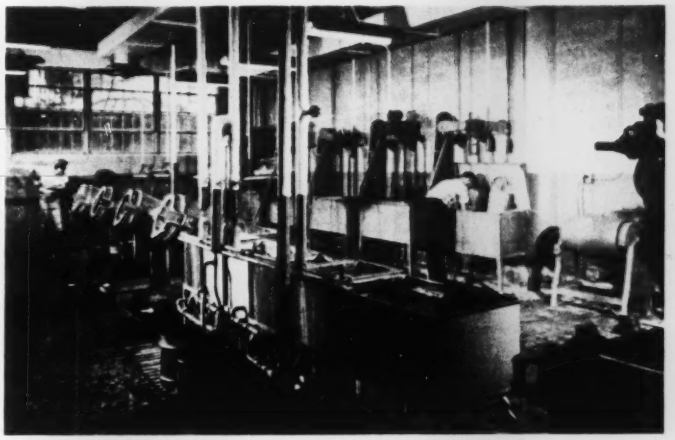
Goals Set for Railroads, Vessels, Copper Wire

DEFENSE PRODUCTION Administration announces defense expansion goals for inland waterways vessels, diesel locomotives, copper wire mill facilities.

The expansion goal for specified types of inland waterways vessels is set at 3,923 new vessels of all types. The goal does not apply to vessels designed for use exclusively on the Great Lakes, vessels procured by defense agencies or vessels constructed or acquired for export. It does include all vessels added to the inland waterways fleet since Jan. 1, 1950, to be acquired or on which construction will begin by Dec. 31, 1953.

Destination Known—The railroad diesel-electric locomotive expansion goal is set at 15,500 locomotive units, and includes all those built since Jan. 1, 1950, and to be built by July 1, 1954. The goal includes all requirements for U. S. railroads; it excludes industrial locomotives for non-railroad use, locomotives procured by defense agencies and locomotives for export.

An interim expansion goal for facilities to produce copper wire mill products is set at $15 million capital investment. This goal is limited to expansion projects started on or after Jan. 1, 1951, to be completed on or before Dec. 31, 1953. It includes production facilities for specialty wire and specialized military-type wire products.



Sheaffer Air Conditions New $3,250,000 Plant

This new factory of W. A. Sheaffer Pen Co., Ft. Madison, Iowa, was designed and built by Austin Co., Cleveland, at a cost of $3,250,000. It is completely air conditioned. The grinders at left do the precision work in finishing plastic parts extruded in the molding department. At right is the plating and finishing department. The floor, with its network of drainage trenches, is made of acid-resisting bricks

Needed: More Plastics Machinery

Business promises to pick up as domestic needs for plastic parts revive and foreign demand for the equipment begins to mount

BRISK foreign demand and an anticipated increase in the domestic needs for plastics are injecting new life into the sales picture for makers of machinery to produce plastic parts.

Up until recently, business in that type of machinery was only so-so because of curtailed production of consumer durables which use a lot of plastic parts, because of the restrictions on the use of steel for such equipment and because most of those machinery manufacturers make other types of apparatus too and were concentrating more on other lines.

About Face—Now, the sales mold changes. J. C. Cotner, president and general manager of Hydraulic Press Mfg. Co., Mt. Gilead, O., says that July bookings for his company were the highest for any one month for the past 15. "There are continued inquiries and interest of considerable volume, and we anticipate 1952 to be a reasonably good year in our plastic machinery division."

"We anticipate the outlook for the fall and winter months to show an increased demand for injection molding machines," predicts F. W. McIntyre Sr., president of Reed-Prentice Corp., Worcester, Mass. "South America has been a heavy buyer of injection equipment recently," he points out.

Good News—The upturn is good news to many of the 300 or so companies that make plastics machinery and to many of the tool and die shops that can produce molds. Few of those companies are yet desperate for business, but all can foresee a time within the next six to eight months when they may be checking every corner for orders. CMP still limits steel to makers of such equipment, but those controls may end or be relaxed markedly by next spring.

The increased interest in plastics-producing machinery stems directly from renewed optimism by makers of plastic parts. That business in the first half ran 6 to 10 per cent below the corresponding 1951 level, but by midyear it had picked up. Increased television and appliance production, fairly good auto output, a high volume in electrical insulation extrusions and steady defense demand all contribute toward optimism among makers of plastic parts who think business will be good through next March and are backing their estimates with more orders for machinery.

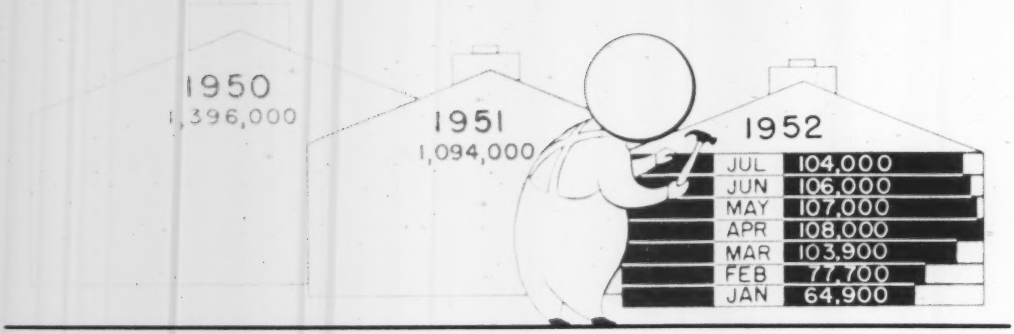
To the South—The export volume in machinery is good, especially in South America, because the people down there are beginning to discover that it's cheaper to make their own parts than import them. European producers of plastics machinery are giving American manufacturers a tough fight for South American markets.

The 1952 output of plastics machinery—molds, preforming equipment, presses and extruders—promises to exceed the 1951 production. But that was only about half of what was turned out in 1950, still the high-level mark in the industry's history.

Melters Must Order Quarterly

Melters and processors of all allocated alloying materials must now make one application for materials subject to NPA Order M-80 to cover purchase and use for three months instead of one month as formerly. Applications should be made on Form NPAF-114. Other M-80 provisions are unaffected.

Housing Starts Are Nailing Up Another Top Year in 1952



House Building Boom: Sales Bust?

Houses used to be sold before the ground was broken; now they frequently stand empty. Despite the depression-like rash of "for sale" signs, builders say the future looks good

DESPITE FORECASTS of less than a million housing starts in 1952, builders are nailing together another over-a-million year of new house construction. The 8482 pounds of steel products required for the average six-room house can be found in dealers' stocks and copper and aluminum are in sufficient supply. Labor is to be had, though at top prices.

The one catch in the whole picture is that while houses used to be sold before ground was broken, now they're frequently standing empty for some months after completion and the ubiquitous picture window is coming into its own as a built-in showcase for the "for sale" sign. Buyers are becoming more selective, yet despite it all the majority of home builders think the future looks great.

"X" Axe — Immediate nub of their unflinching optimism is the imminent removal of Regulation X. In June Congress compromised through an amendment to the Defense Production Act providing that if housing starts fall below the annual rate of 1.2 million in a given three-month period the President shall relax credit controls on the purchase of said housing. Despite the traditionally high-building period of the summer months, housing starts are below the requisite level and the control should go by Oct. 1.

When that happens home builders figure sales will start to catch up with building once again so they see their empty houses as money in the bank.

On the Beam?—Here's the way their reasoning goes: People now are buying the cheaper castles; the market is firm for houses below $11,000 but slack from there on up. Buyers express an interest in the higher-priced homes beautiful, but when the amount of the down payment is mentioned they slip into their Cadillacs and quietly drive away. Removal of Regulation X, the builders figure, could lower the down payment to a less inhibiting point.

The only bar to an open sales door is that the banks still hold the money and they're inclined to view the whole deal as rather speculative. Their interest rates on housing loans are relatively low because those investments thus far, at least—are thought safe. Now they're concerned lest a lower down payment tempt John Doughless to fly the coup when times get tough. Drops in down payments to five per cent, which the builders hope for, aren't probable; some less-ambitious cuts are.

Good Foundation — Even so, builders probably will have an extended period of high building ahead. From the 1930s to the mid-1940s very few houses were built and many are becoming obsolete. That means a backlog that should run until at least 1956 and remodeling work on the older houses to fall back on as things begin to get slack. Most builders have been too busy to enter the remodeling field thus far.

So despite their preoccupation with rising labor costs and development of fabrication short-cuts to keep their product competitively and attractively priced, home builders should be nailing up high sales for several years to come.

Slow Steel Hits Oil Burners

The oil burner industry is burned up at the inability to obtain delivery of steel.

Members of the industry's Advisory Committee told NPA that although their allotments of steel under the Controlled Materials Plan are adequate, the steel mills will not promise delivery for third quarter, 1952, allotments until the first quarter of 1953. This, they said, was their main problem.

The committee fears that since the peak of the oil burner industry comes in August, September and October, there will not be enough oil burners on hand this fall and winter to support the current high level of residential and other construction.

They told NPA that replacement needs cannot be met unless more steel moves into the hands of the manufacturers, and requested that special assistance be given the oil burner industry.

NPA explained that demands of

the military and atomic energy programs must receive first priority as the steel mills go back to work. But if it is possible that the set-asides for the military may prove larger than required, any excess can be parceled out among civilian manufacturers.

Warehouses To Stock Titanium

West Coast metal supply warehouses are preparing to stock titanium, the new "wonder metal". Members of the National Aircraft Standards Committee's Metals Stocklist Subcommittee, meeting in Los Angeles, Calif., September 9-10, will prepare a recommended standard list of titanium sheet, plate and bar stocks.

Currently, titanium is so scarce and so expensive that warehousing is not possible. But as supplies increase and the cost per pound goes down, warehouses are expected to stock it.

Almost as strong as steel, with lighter weight, titanium is being used increasingly in aircraft as a substitute for high-priority, corrosion-resistant steels. In current production quantities, titanium costs as much as $20 per pound. Increasing use of the metal is expected to reduce its cost considerably.

Top Management Problems Listed

The major problems facing industrial management are undergoing vast and rapid change, and the trend is toward sales problems, says Harold F. Howard, president of Harold F. Howard Co., Detroit industrial and management engineering company. In his annual survey, Mr. Howard found that what were major problems last year are not considered such this year. His survey checklist has been expanded about 25 per cent.

Rated as the six top problems are: 1. Executive selection and development; 2. fast acting accounting systems; 3. flexible budget controls; 4. labor standards that keep up with method changes; 5. operating costs that are in line with competition; 6. constant product development. Many of those problems deal directly or indirectly with sales, he believes.

HIGH GEAR PRODUCTION

Vital Teeth Give Strong Sales Bite

GEAR MAKERS are getting their teeth into defense contracts and the industry is really humming. It's hard to peg the total gear sales volume, for many automotive, farm machinery and machine tool makers have their own gear-cutting facilities and the statistics aren't available. But the contract and job shop gear manufacturers alone will probably hit $250 million in 1952, says John C. Sears, American Gear Manufacturers Association executive secretary, and the total gear output figure could be twice that amount.

Mesh in Defense—At least 30 to 40 per cent of the gear output will go into direct or indirect defense service. Tank transmissions, aircraft engines and military electronics equipment are among the heavier direct users of gears. Machine tools and other production equipment to make defense end-products also take a healthy slice of the output and the exact extent is difficult to estimate.

Precision gear makers in the industry are profiting most from the tolerance-tipsy defense procurers, while standard gear makers report orders at normal or slightly above. Tolerances demanded in cutting and shaving gears for tank fire control and other electronic devices would have been considered impossible only a short time ago, but makers of these ultra cog-wheels meet them. The one rub right now is a shortage of equipment needed for special toothers.

Dentists Wanted? — Another stripper of gear production is the shortage of skilled labor required to run gear-generating machine tools. In many cases shifts work ten to twelve hours to keep up with order backlogs; some plants instituted formal training programs to alleviate the labor pinch.

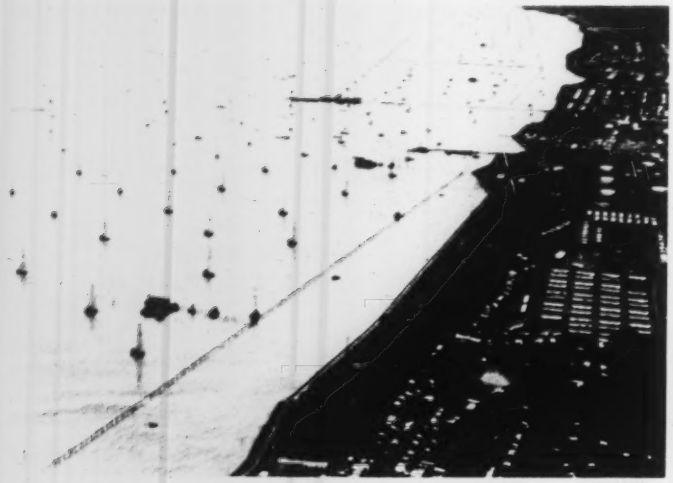
Although the materials situation has been pretty tight in some cases, hand-to-mouthing-it keeps nearly all gear shops working at or near capacity. Tightest are carbon bar stock in larger diameters and forgings; castings and plate blanks are in slightly better supply. Gear makers report that nylon in ever-increasing quantities is being used.

Big, Little Gear Makers—Like the screw machine products companies, many gear companies operate in alley shops with a handful of workers and machines while others are among the younger giants of industry. Regardless of size, the majority have relatively active sales organizations. Immediate reason is the tendency under CMP to develop overstocks of certain gear sizes, but competition in the industry is traditionally keen and plenty of savvy and derring-do are required to roll up among the leaders.

It can be done. Universal Gear Works Inc., Detroit, is a good example of what a smart little gear company can do in 1952.

Efforts with Teeth—The company expects sales in 1952 to be 50 per cent larger than 1951. It is in the process of a 25,000-square-foot enlargement that will put it into the big time for the gear industry. It now has 90 per cent of its production going for direct defense.

The feeling is that more Air Force work will be popping shortly. Possible drop-offs in machine tool production should be more than offset by military vehicle and aircraft work increases in the next few years, so the outlook for the gear makers is good. Though they're over the hump in expansion, there's still a good deal of equipment modernization going on in preparation for the immediate future. Gear makers know that the wheels of industry and defense are turning, and many of those wheels have teeth.



United Press

Fortune in Oil and Steel

How much is $1 billion worth of steel? A look at Venezuela's Lake Maracaibo gives a good idea, because there is that much steel in the 2600-odd oil derricks dotting its surface. Said to be the largest single oil producing area in the world, with a reserve estimated at 5 billion barrels, those wells produce 1.3 million barrels a day. The U. S. absorbs about 70 per cent of output

Skilled Labor: Needle in a Haystack

DEMAND FOR skilled and professional workers has increased over the last year despite a decline in the volume of occupational shortages generally.

Hardest-to-fill job openings include engineers, draftsmen, machinists, toolmakers, die sinkers and setters, workers in machine shops and related occupations, workers in occupations in the building of aircraft, nurses, stenographers and typists, says the Labor Department's Bureau of Employment Security.

Help Coming?—One aid in getting the needed workers to the jobs is the stepped-up labor clearance service of the public employment service. When the defense program started, the number of jobs in the clearance service was slightly over 12,000. Now it is over 51,000. The number of workers placed with employers through the out-of-area and out-of-state clearance and recruitment facilities has increased over the same period from 8,000 to 18,000 a month.

The number of occupational shortages in July, by occupational groups, included: Professional and managerial, 10,872; clerical and sales, 4,023; service, 1,368; skilled, 20,964; semiskilled, 12,731; and unskilled, 1,481. That shows the shortage of skilled workers represent over 40 per cent of the total number of job openings in all groups.

Specific Headaches—Within the skilled group the largest number of job openings was concentrated in the following occupations: Machinists, 3,567 in 25 states, an increase of 700 openings from the previous month. 41.1 per cent of the total number of requests for these workers came from Pennsylvania, District of Columbia and New Jersey; machine shop and related occupations, 3,038 in 29 states, an increase of 237 openings. 30.7 per cent of the total number came from Connecticut and New Jersey; toolmakers, die sinkers and setters, 2,636 in 33 states, an increase of 199 openings; and pattern and model makers (except paper), 1,180 in 25 states, an increase of 209 jobs.

And that is a long way of saying, a good man now-a-days is hard to find.

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Nations co-operating with the United States in carrying out the new system are: Belgium, Denmark, France, Italy, Luxembourg, Netherlands, Norway, Portugal, United Kingdom and Western Germany.

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Machine Shop Trailers	Boyertown Auto Body Works Inc., Boyertown, Pa.
Ambulances	ACF-Brill Motors Co., Philadelphia
Automotive Engines	International Harvester Co., Chicago
	Continental Motors Corp., Muskegon, Mich.
Trucks, 5-Ton	International Harvester Co., Chicago
Motor Vehicle Parts	General Electric Co., Schenectady, N. Y.
	Webster Electric Co., Racine, Wis.
Shells, 105 mm	Aluminum Specialty Co., Manitowoc, Wis.
Shells, 90 mm	Cribben & Sexton Co., Chicago
	Burlington Brass Works, Burlington, Wis.
Fuzes	Speed-O-Print Corp., Chicago
Cartridge Cases, 20 mm	Nesco Inc., Milwaukee
Cartridge Storage Cases	New Monarch Machine & Stamping Co., Des Moines, Iowa
Boosters	International Register Co., Chicago
Primers, Percussion	Ainsworth Mfg. Corp., Detroit
Aircraft Engine Parts	United Aircraft Corp., Pratt & Whitney Div., E. Hartford, Conn.
Propeller Parts	United Aircraft Corp., Pratt & Whitney Div., E. Hartford, Conn.
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CHECKLIST ON CONTROLS

Materials Orders

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ELECTRIC UTILITIES—Revocation of Direction 1 to NPA Order M 50 requires electric utilities to cut back the inventories of copper and aluminum built up as a result of the steel stoppage. Revocation was issued Aug. 29, 1952, effective Oct. 1, 1952.

GRAPHITE AND ELECTRODES — Direction 1 to NPA Order M 66, issued and effective Aug. 29, 1952, authorizes delivery of artificial graphite and carbon electrodes during the fourth quarter, 1952, to the same persons and in the same quantities, sizes and shapes as were authorized for the third quarter. It also provides for supplemental allocations, for allocations for users who did not have allocations in third quarter and for a quarterly report by users on revised Form NPAF 97.

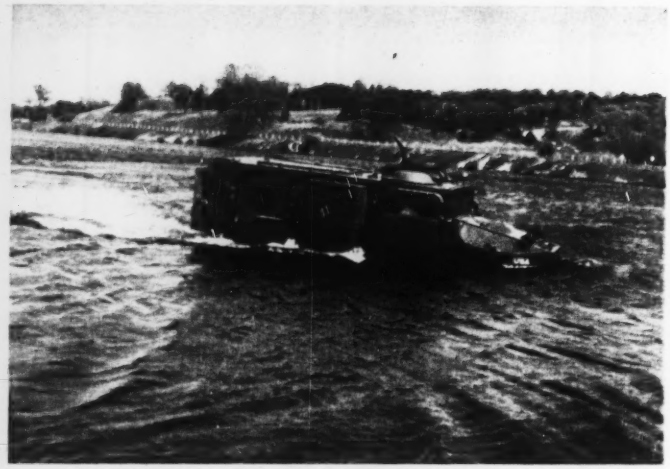
Controlled Materials Plan

B" PRODUCT PRODUCERS — Amendment 1 of Direction 18 to CMP Regulation 1, issued and effective Aug. 29, 1952, clarifies the automatic allotment procedure established for "B" product manufacturers. "Total third quarter allotment" means total net allotments of a particular controlled material plus any quantity of that material acquired through self authorization as of the close of business on Aug. 29, 1952. It does not include any allotment decrease received on Form CMP 11 and any portion of third quarter allotments returned on Form CMP 12.

COPPER, ALUMINUM—Revocation of Direction 1 to CMP Regulation 2 was announced on Aug. 29, 1952. Direction 1 temporarily suspended limitations on inventories of aluminum and copper during the steel stoppage. Revocation will become effective Oct. 1, 1952.

ALUMINUM—Amendment of Aug. 29, 1952, of CMP Regulation 2 authorizes accumulation of 60 day inventories of aluminum controlled materials during fourth quarter. If a manufacturer has more than one operating unit, he may elect to keep separate inventory records for each unit, but thereafter he may not change without prior written approval of NPA. It was effective Aug. 29.

STEEL—Amendment 1 of Direction 16 to CMP Regulation 1, issued and effective Aug. 29, 1952, clarifies the position of third and fourth quarter orders on steel producers' schedules during October and November, 1952, and during January and February, 1953. Direction 16 shall not interfere with the option given steel controlled material producers to determine which nondefense orders they will accept and schedule prior to the 15 day period immediately preceding lead time. During the 15 day period Direction 16 shall govern.



A Case of Limited Resemblance

The Army calls this craft the "Otter" because of its amphibious characteristics, but the resemblance between it and the animal stops right there. It weighs about 12,000 pounds and can carry a pay load of 3000 pounds. On land, it has a top speed of 30 mph, and on water it travels between 4 and 8 mph. Built for the Army by Pontiac Division, General Motors Corp., the Otter is highly mobile on snow, in mud and marshes and over rough terrain. Its engine develops 134 hp

Conversion Steel: The Rules Are Changed

LIKE an Indian giver, NPA is taking back some of the latitude it gave three weeks ago on use of conversion steel. As a sop, use of conversion steel without charge to a consumer's allotment is permitted in September, a month earlier than originally planned.

Aim is to permit earlier use of exquota conversion steel in smaller amounts by an increased number of consumers. The changes are effected through amendments of Aug. 28 of Direction 19 to CMP Reg. 1 and Direction 7 to Revised CMP Reg. 6.

Amendments provide that producers of class A products requiring finished conversion steel during third and fourth quarter, 1952, and first quarter, 1953, may obtain such material on an ex-allotment basis by applying to NPA for purchase authorizations on a form set forth in the order or by receiving it from a customer who has given the producer in question an authorized production schedule.

Limit Is Raised—Manufacturers of A products and builders may request permission to purchase conversion steel for third quarter up to 20 per cent of the allotment authorized for a given production schedule. During fourth quarter and first quarter, 1953, such producers and builders may purchase up to 40 per cent of the quantity authorized under a specified production schedule.

Amendments also provide that manufacturers of B products may, during third and fourth quarters this year and first quarter next year, order up to 500 tons of conversion steel for each product class in which they have received one or more production schedules, without prior approval of NPA. Builders may do the same for every building project for which they have received an authorized construction schedule.

Still a Ceiling—Producers of B products and builders who require more than 500 tons of conversion steel for the third quarter may not request authorization to order more than 20 per cent of their authorized allotments for that quarter. In the fourth and first quarters, that percentage is increased to 40 per cent of authorized third quarter allotments.

"Things Are Not Always What They Seem"

Nine out of ten persons probably would say that the Patton T-48 medium tank is a steel vehicle. The same nine out of ten would also say that Firestone Tire & Rubber Co., Akron, makes rubber products. However, not all is what it seems, because there are many rubber parts on the tank, and Firestone produces steel parts as well as rubber parts for it. The 90 mm cannon, steel and rubber tracks, road wheels, track-support rollers and special mufflers come from the tiremaker

More Bounce in Rubber Goods Sales

In the past seven months demand for industrial rubber products has lost some of its zip, but the industry expects business to regain its resilience in the fourth quarter

BUSINESS will be bouncier for companies making industrial rubber goods.

Demand has been off for the past seven months, but some members of the industry look for an improvement in the fourth quarter.

The Reason Why—One explanation for the improvement is that the steel strike isn't going to affect business generally as drastically as anticipated. Industrial rubber business follows the steel index closely. The 1952 volume has declined, both physically and in dollars, just as steel production has dropped. Prices have been softening at the distribution level, but should firm a little in the next few months.

The rubber industry's total sales of tires, tubes, mechanical products and chemicals hit $5.2 billion in 1951, compared with $4.1 billion in 1950. Because of the decline in the mechanical-goods category, the total volume for 1952 probably won't equal the 1951 pace, but it should surpass 1950's. In 1947, the latest year in which a breakdown of industrial sales is available, shipments of belts and belting amounted to $130 million; hose $114 million and molded and extruded goods $95 million. Shipments in 1952 of those three leading industrial rubber products will be higher than in 1947, especially of hose which now nearly equals deliveries of belting. All-told, the industry offers about 30,000 different industrial rubber items, considering all sizes and specifications.

Doubled—Between 18 and 20 per cent of industrial rubber goods production is now going into defense, compared with about 10 per cent a year ago. Defense needs include fuel cells for aircraft, tank tracks, bullet-sealing hose and other types for fuel lines. In civilian uses, the largest consumers of mechanical rubber goods include the automotive industry with its needs for grommets, v-belting and molded and extruded parts; the mining industry which uses large quantities of belting; and the oil and gas industry, heaviest consumer of hose.

Plenty of rubber is available, both natural and synthetic. Those two types are now being consumed for industrial requirements in about equal amounts. Government stockpiles are supposedly ample—at least Washington is buying little at the moment.

Weather Eye—The industry is keeping a close eye on new plastics and on the development of blends of rubber and plastics. The fastest-growing industrial use for rubber is rubber coating for corrosion resistance and for abrasive conditions. Exhaust systems at a grinding wheel, for example, may be rubber coated to give longer life. And duct work may be rubber coated where corrosive fumes are present.

Some 50 companies account for 85 per cent of all the business done in mechanical rubber goods. Besides the big names in the industry, such as U. S. Rubber Co., Goodyear Tire & Rubber Co., B. F. Goodrich Co., Firestone Tire & Rubber Co. and General Tire & Rubber Co., there are also the big "little" companies. Some of those include Automotive Rubber Co. Inc., Ohio Rubber Co., Stalwart Rubber Co. and Yale Rubber Mfg. Co. They all hope to participate in the stretch in business expected in the next few months.

Manganese Recovery Studied

How to recover the estimated 772,000 tons of manganese annually drained off in open hearth slag is getting intensive study as the U. S. consumed a peak 694,000 tons of that element in 1951, almost all of it imported. If that slag tonnage of manganese were made available, it would relieve to a great degree this country's dependence on foreign sources.

India, the Union of South Africa and the Gold Coast were the three major sources of manganese for the U. S. in 1951, shipping 620,000 tons to this country. The total was 10 per cent under shipments in 1950 and the loss was partially made up by increased shipments from Latin American countries.

Windows of Washington

By E. C. KREUTZBERG *Washington Editor*

STEEL INVENTORIES LAST REMARKABLY WELL
. . . out of the hat or kept under the hat?

Production in plants dependent on steel has surprisingly withstood the rigors of the steel strike. Henry H. Fowler is gratified, but puzzled

INVENTORIES of steel in excess of the 45-day limit set by NPA may have been a factor in the way steel consuming plants have kept going despite the steel strike. Henry H. Fowler, DPA and NPA administrator, admits he doesn't know, but he's "highly gratified and very much surprised" by the turn of production events.

Magic?—"Certainly, in view of the 18 million tons of finished products lost during the strike, the resumption of steel shipments in August is not the answer. We are trying to find out why the vast majority of steel consumers have been able to maintain practically uninterrupted operation," says Mr. Fowler. "In the meantime, we are going to enforce the present 30-day inventory limit with all the resources at our command."

Steel inventories will not regain a normal balance before Jan. 1, and then on a very minimum basis, says Mr. Fowler. Although the limitation of 30-days' supply will end Dec. 31 and be replaced on Jan. 1 with a restoration of the former 45-day limit, Mr. Fowler estimates it will take at least until Mar. 1 for consumers generally to accumulate 45-days' requirements of all the finished steel shapes.

More Calculations—Until then, on the basis of NPA tabulations, interruptions in operations at consuming plants may be expected at any time and in any degree from mild curtailment to full shutdowns. But, in view of the surprisingly sustained rate of activity during and since the steel strike, Mr. Fowler was not prepared to make any definite predictions of interruptions to production.

At the rate of progress now reported, military production programs interrupted by the steel strike will be back on schedule somewhere in October. Unless the international picture changes so as to force an expansion of military production, there should be no new curbs on civilian industry as far as DPA and NPA are concerned.

End of CMP — Assuming that many of the present controls over the civilian economy will be removed in 1953, DPA and NPA officials right now are planning a limited priority system to succeed the Controlled Materials Plan after it loses its usefulness, probably sometime in 1953.

Delayed Line Buck . . .

Has the Office of Price Stabilization devised a method of price control by delay?

A number of manufacturers think so. They have put in requests for price relief under the OPS earnings standard some of them as far as three months back. No action has been forthcoming even though the manufacturers think they have supplied all the information required by the agency.

One manufacturer reports that one of the OPS higher-ups told him substantially the following: "You fellows have the wrong idea. You come to us for relief. It's our job to see that you don't get relief, that you hold your prices down."

A Good Long Look . . .

Study of conservation in building construction is to be extended over another year under a contract placed by Defense Production Administration with the Building Research Advisory Board. The latter is a quasi-government group conducted jointly by the National Research Council and National Academy of Sciences. Harold M. Sylvester, long with the Navy Bureau of Yards and Docks, has been appointed director of BRAB's field service.

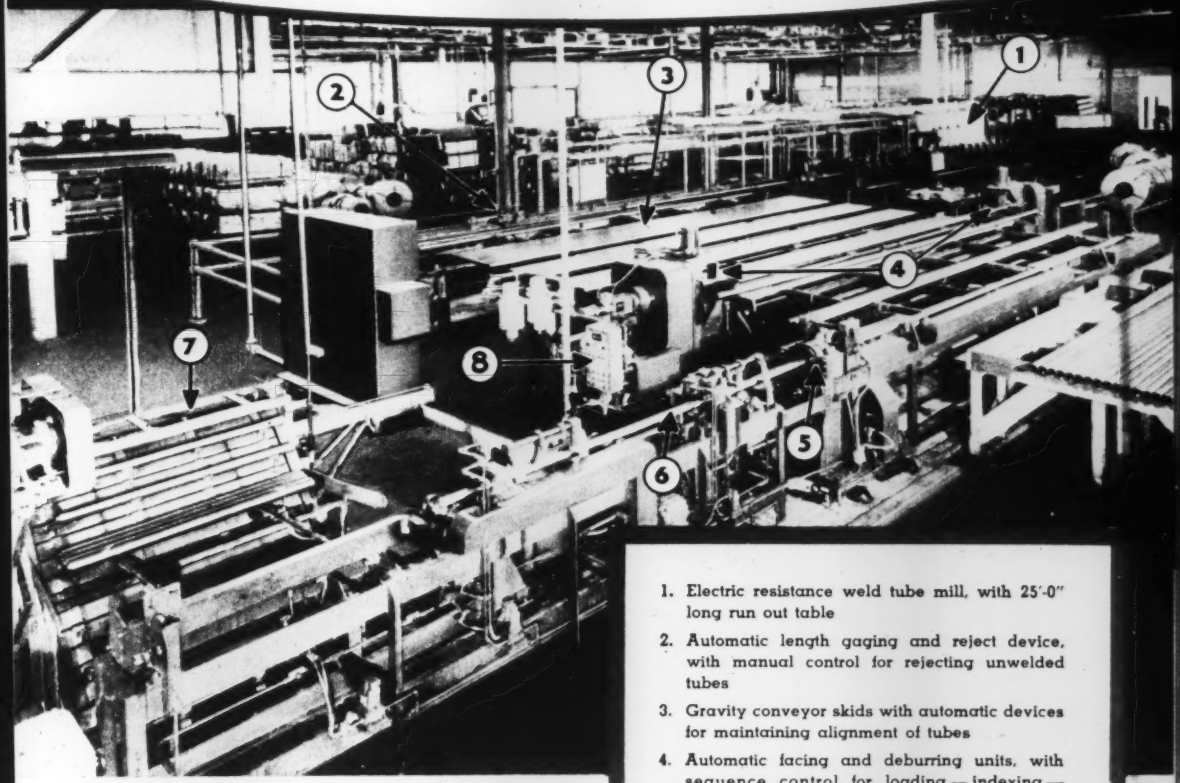
Who'll Bell the Cat . . .

The Navy's push to replace military with standard commercial specifications when procuring steel has been taken over by the Munitions Board. It is holding conferences with the three services to study the possibilities of identifying their steel requirements by SAE, AISI, etc., numbers. Exceptions, of course, would be made in the cases of purely military steels, as armor plate, ordnance and some aircraft steels.

Keeping Busy Dept. . . .

United States trade policies are to be studied under direction of Daniel W. Bell, 35 years with the Treasury Department and now president, American Security and Trust Co., Washington. He will serve as chairman of the Public Advisory Board for Mutual Security. Immediate objective is to spot phases of our over-all trade policy which work at cross purposes with the basic aims of the Mutual Security program.

Special
DUNCAN-McKAY
Completely Automatic Cut-up Line
FOR TUBE FINISHING OPERATIONS



1. Electric resistance weld tube mill, with 25'-0" long run out table
2. Automatic length gaging and reject device, with manual control for rejecting unwelded tubes
3. Gravity conveyor skids with automatic devices for maintaining alignment of tubes
4. Automatic facing and deburring units, with sequence control for loading — indexing — clamping — cutting and unloading tubes
5. Duncan-McKay automatic tube cutoff with magnetic conveyor rolls — positive hydraulic feed and hydraulic torque converter drive for the cutting head
6. Mandrel end — with automatic length gage — magnetic exit conveyor and automatic dumping device
7. Automatic exit conveyor for cut length tubes
8. Operating control station with push button control of all automatic functions.

Finishing and cutoff operations have always proved to be a bottleneck in tube production. The McKay Automatic Cutup Line at Ford's Mound Road, Detroit Plant, provides complete automatic control of length gaging—facing—chamfering and cut to length operations for Ford's rear axle and torque tube requirements. Ford's policy of "Automation wherever Practical" really pays off here with increased production—closer tolerance control—less scrap loss and reduced cost per piece.

If you have a similar problem, contact McKay engineers.

ENGINEERS AND DESIGNERS OF
EQUIPMENT FOR THE AUTOMOTIVE,
FABRICATING AND STEEL INDUSTRIES

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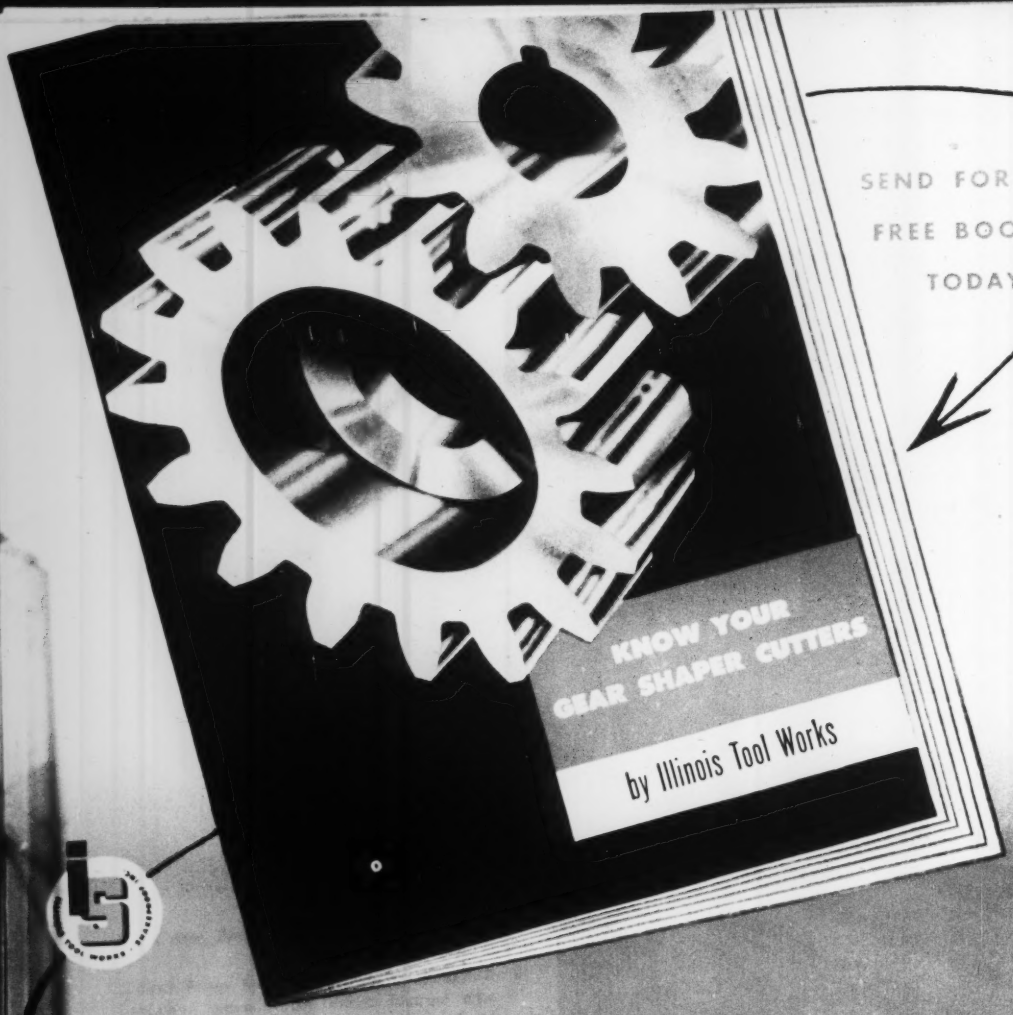
The McKAY MACHINE Company
YOUNGSTOWN, OHIO



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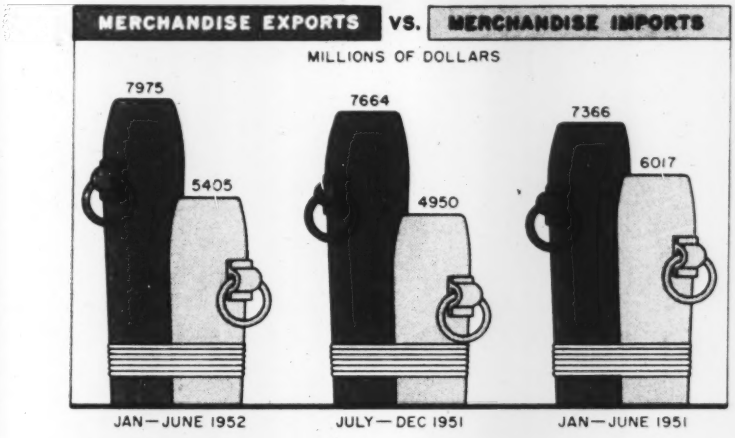
The Trade Gap . . .



Export Surplus Defies Solution

First half, 1952, figures show the trade gap closed slightly but a real solution has yet to be found. Non-military exports lost ground in second quarter

THE U.S. still suffers from gaposis in import-export trade. How to squeeze the two bars in the chart above closer together is no longer just a domestic problem, but includes the interests of practically all non-communist countries of the world.

As long as the trade gap continues, U.S. manufacturers will have trouble expanding their foreign markets, and foreign countries, like Britain currently, will fall into one financial crisis after another.

Paper Profits—A continuation of dollar inflation doesn't help either. The domestic customer may be able to pay higher prices because his product in turn has an inflated price tag. But, with the dollar pegged at a certain rate for foreign exchange purposes, foreigners find that they get less and less real product for their scarce dollar credits.

U.S. non-military manufacturers can find little cause for complacency in the growing export total in first-half, 1952, as they actually lost ground during the second quarter. A sharp rise in shipments of military equipment and supplies under the Mutual Security Program offset an 8 per cent decrease in non-military shipments in the second quarter, 1952, from the first quarter level (note the table below).

Long Range Answer — Economists think they see the solution to scattered world trade patterns in America's growing need for raw materials during the next 25 years. They believe that U.S. purchases of raw materials from countries which buy manufactures from other foreign producers will re-establish workable world trade patterns.

The other answer is for the U.S to buy much more foreign manufactures.

Selected Leading Exports
(In Millions of 1952 Dollars)

	JAN.-JUNE, 1951	JULY-DEC., 1951	JAN.-JUNE, 1952
ELECTRICAL APPARATUS	$277	$279	$301
INDUSTRIAL MACHINERY	653	685	820
TRACTORS and PARTS	162	148	184
AGRICULTURAL MACHINERY, IMPLEMENTS	71	70	81
AUTOMOBILES incl. PARTS, ACCESSORIES	602	580	586
CHEMICALS, related PRODUCTS	463	518	438
PETROLEUM and PRODUCTS	321	462	408
IRON and STEEL MILL PRODUCTS	289	322	401
TEXTILE MANUFACTURES	438	381	346
SPECIAL CATEGORY, Type 1*	675	616	905

*Military Supplies and Strategic Commodities

American Ante: One-Fourth

The U.S. furnished nearly $220 million for 31 iron and steel projects in Marshall Plan countries since 1948, says American Iron & Steel Institute. Even that figure is on the low side, since it covers only major projects and does not include indirect purchases of equipment or materials.

Total cost of the 31 projects was estimated originally to be about $864 million. Thus, ECA-MSA funds account for about one-fourth of the total. The projects are principally finishing plants rather than steelmaking facilities.

British Car Exports Roll Up

U.K. exports of automobiles to the U.S. were 15 per cent greater in the first six months of 1952 than in the comparative period of 1951. Shipments in 1952 were 13,223 cars with 11,488 cars being shipped in the first half of 1951.

The Society of Motor Manufacturers & Traders, British automotive trade association, says sales of British cars in the U.S. for the first four months of 1952 showed an increase of 21 per cent above sales during January through April, 1951. Shipments of British cars to other countries, particularly sterling areas and Western Europe, have increased even more rapidly than those to the U.S.

Foreign Income Keeps Climbing

Income from U.S. investments abroad were $2 billion in 1951, reports the Office of Business Economics. In addition, foreign subsidiaries of U.S. companies had earnings of about $700 million which were not distributed and did not enter the balance of payments. Thus, total earnings on U.S. investments abroad were $2.7 billion in 1951 compared with $2.2 billion in 1950.

Ryan's

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ON THE COVER

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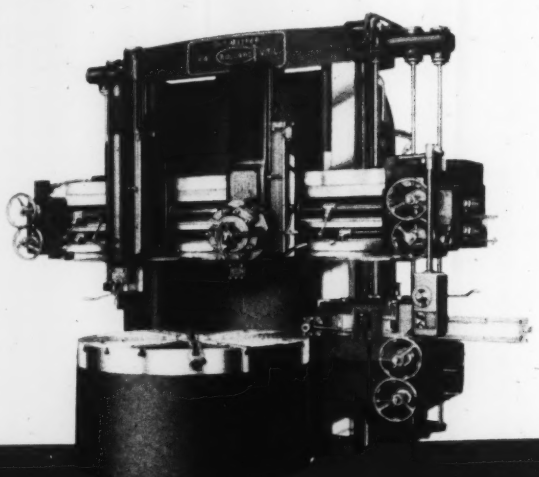
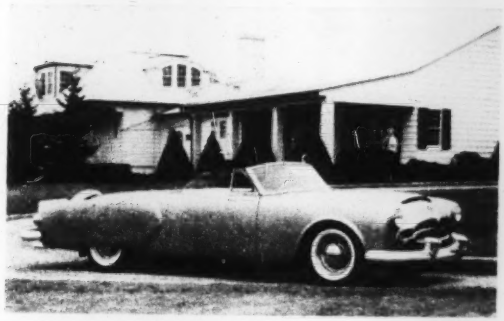


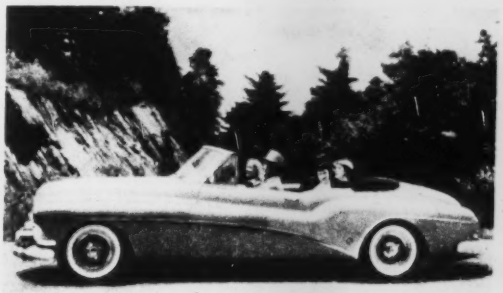
THE BULLARD COMPANY BRIDGEPORT 2, CONN.

By H. C. TUTTLE *Detroit Editor*

Mirrors of Motordom



PACKARD'S PAN AMERICAN



BUICK'S SKYLARK

The sport car is no longer a matter of little interest to U. S. automakers. Packard and Buick are trying to get a hold on the English-Italian dominated market

DETROIT

SPORTS CAR enthusiasts are going to have an American dish served up to them in 1953.

The English and Italian menu has made Detroit's chiefs more than a little jealous, so on the new car bill of fare will be a concoction designed to please that breed of gourmet that can plunk down about $6000.

Test of Taste—Two prospective builders of sports cars—Packard and Buick—are now engaged in that nebulous activity of testing public reaction. This means exposing as many people as possible to their sports cars, tallying the enthusiasm the cars generate, and counting the orders which are promised if the cars are built. To some extent this reaction testing is a stall. No one wants to bring out a high priced car that won't sell; neither does any company want to be asleep to what may be a blossoming trend. But some circles are certain the cars can be sold if the price is right. Bringing the price down is what is taking the time, not public reaction testing.

Though there are other sports cars about to be shown by American firms, Buick's and Packard's are the only ones currently on exhibit. These two provide a good contrast between two schools of thought. Buick has designed its Skylark to make maximum use of production parts. It attains its racy look and distinctiveness through some relatively simple changes—notching the top of the door, cutting out the fenders to reveal the wheels, streamlining the trunk lid, lowering the seats, slenderizing the "sweepspear."

Another Recipe — Packard has custom-made a body which is recognizably Packard, but makes only limited use of mass-made parts. Its Pan American has only a front seat. Its top is concealed beneath a flush-fitting lid to which the radio aerial is attached; a hood-mounted airscoop permits a lower radiator; its spare tire is vertically mounted on the rear, over-all length being increased 9½ inches to accommodate this feature. Road clearance is reduced an inch to enhance the long, low lines.

Both cars have been built on production convertible chassis and both make wide use of such standard parts as springs, steering mechanism, etc. Buick's Skylark has an unaltered engine for its power. This, at present, is the 170-horsepower in-line overhead valve eight. Packard has souped up its 155-horsepower eight through addition of a four-barreled carburetor, modification of the manifolding and redesign of the cylinder head. The horsepower is upped to 185.

Imported Delicacy—Both cars have specially made chromed wire wheels, high-cost importations. But two American wheelmakers Motor Wheel and Kelsey-Hayes—have developed tooling which will bring this particular cost item more nearly within reach.

Most compelling reason for American car makers to chase the sports car grail is the latest sales figures of foreign-made cars. June new registrations were 2658, compared with 1603 for June, 1951, and for first half foreign car sales ran almost 50 per cent higher than six months of 1951.

High Living—If Buick and Packard's approach is to be followed by other American firms, the MG infatuation will not suffer much. This British car is priced far below the cost target set by these domestic makers. Buick's car possibly can be made to sell for $5500-6000 and orders have been taken from hopefuls who are gambling that 1953 will bring them into possession of a Skylark. Packard's problems are more difficult. If produced for sale the Pan American's body would probably be made in some custom shop, such as Henny Motor Co. at Freeport, Ill., which built the original and is working on several duplicates.

But it is a safe bet that there will be intriguing new business for short-run die makers, low-volume stampers and parts producers when

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American car makers decide to offer their tasty dishes to a sports car-hungry public.

Eyes Skyward

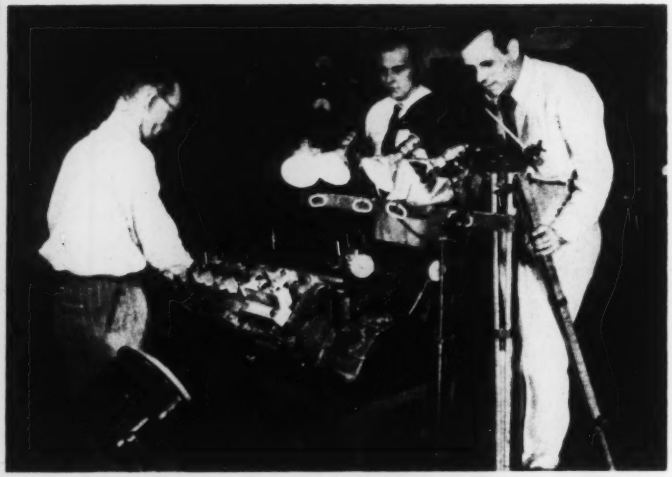
Automen's eyes were lifted from the pavement to the troposphere as the International Aviation Exposition took over Detroit's sky. For all the glamour and spectacle of the occasion, there remained people whose feet are firmly planted in realism as it concerns air power. Some of these men spoke out frankly in an appraisal of the air build-up.

Gen. Hoyt S. Vandenberg, chief of staff, U. S. Air Force, choosing his words carefully, made reference to the frequently expressed criticism of growing complexity of military aircraft. "That this trend should be restrained," he said, "I am quite willing to concede. But let us not delude ourselves into believing that fleets of cheap, 'hot rod' airplanes will bring the economy we all desire. The right solution, we can be convinced, lies not in masses of relatively cheap and simple aircraft, but rather in the careful choice of the aircraft most effective for the jobs to be done."

Quality, Not Quantity—James H Doolittle emphasized: "In our endeavor to build an adequate military establishment, and adequate productive capacity, we must not forget that our strength over the long haul must lie in quality rather than the quantity of our weapons."

An analysis of the Air Force build-up was offered by Undersecretary Roswell L. Gilpatric, at this Air Force Association Preparedness Day Symposium. In the fiscal year ended in June nearly twice as many military planes were delivered as in the previous year. Engine production, troubled more than airframe output by engineering and tooling difficulties, was 60 per cent greater in fiscal 1952 than in 1951. The Air Force as a whole has about doubled since Korea.

Changes Coming — Discussing the possibilities of further schedule changes and specification modifications, which have been a bugbear of producers, Undersecretary Gilpatric asserted the aircraft industry as a whole will not be adversely affected by the latest (July) production schedule, and all industry members now in the Air Force program will remain in production. Further changes, however, can be expected.



High-Speed Camera Catches High-Speed Action

Even when this "Rocket" engine hits speeds as high as 4400 rpm, engineers at Oldsmobile Division's engineering laboratories at Lansing, Mich., can study its valve action through the use of an ultra high-speed motion picture camera seen focused on the engine. The camera has a speed up to 15,000 frames a second

Troubleshooters

Oldsmobile uses two unlikely pieces of equipment to seek out ways to improve performance of the valve mechanism used in its engine—a high-speed motion picture camera which can gobble up more than a hundred feet of film a second, and a wire sound-recorder. Prior to the use of these instruments valve performance was somewhat a matter of conjecture. At maximum rpm the valves open and close 2200 times a minute. They have to open fast and quietly, stay open as long as possible to permit air to enter and/or exhaust gas to leave, and close fast and quietly. Were they doing this job as well as it could be done, the Oldsmobile engineers wanted to know.

The 16-mm camera is focused on the valve mechanism. A steel scale is attached to the valve spring retainer and a vernier gage is attached to the cylinder head. When the valve opens and closes the scale moves past the vernier, permitting precise readings of the valve lift. A stroboscopic light actuated by the engine timer and aimed at the camera shines through holes in the vernier whenever the valve is wide open.

The performance curve of various valve, valve spring, and camshaft combinations can be plotted against a curve of theoretically perfect performance.

The wire recorder does what the camera can't: Catches the sounds of the eight types of camshafts tested to ascertain which gives off the least noise.

Auto, Truck Output

U. S. and Canada

	1952	1951
January	409,406	645,688
February	467,691	658,918
March	517,207	792,550
April	576,505	680,281
May	546,674	695,898
June	560,952	653,682
July	227,460	522,858
August	325,500*	571,442
September		505,758
October		558,971
November		480,199
December		402,729
Total		7,179,161
Week Ended	1952	1951
Aug. 2	22,148	117,010
Aug. 9	43,964	97,351
Aug. 16	36,890	129,661
Aug. 23	109,588	138,797
Aug. 30	125,001	137,479
Sept. 6	102,000*	103,224

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. *Preliminary

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Graph-Mo® steel dies produce up to 80,000 parts without throwing burrs!

THE Reliable Tool and Die Company, Cleveland, Ohio, was having trouble with the chromium and carbon dies it used in making small, intricate gears and parts for electric motors and toy mechanical winding motors.

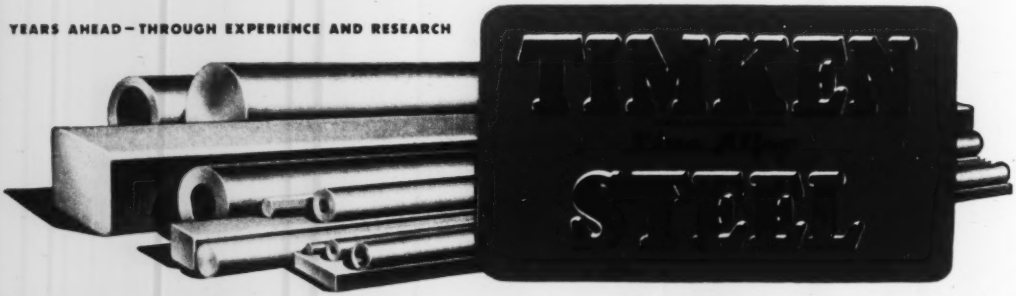
The dies were throwing burrs. The parts often tore when broached. Gear teeth spalled in the dies. And die life was short due to chipping of the cutting edges.

Then Reliable's engineers tried Graph-Mo*, one of four Timken* graphitic tool steels. The Graph-Mo blanking dies produced as many as 80,000 parts without a single burr. Because of free graphite in its structure, Graph-Mo has outstanding low-friction properties: minimum tendency to scuff, seize, score or gall. Tearing and spalling were eliminated. And the cutting edges stayed sharp and true because the diamond-hard carbides in Graph-Mo give excellent resistance to wear and abrasion.

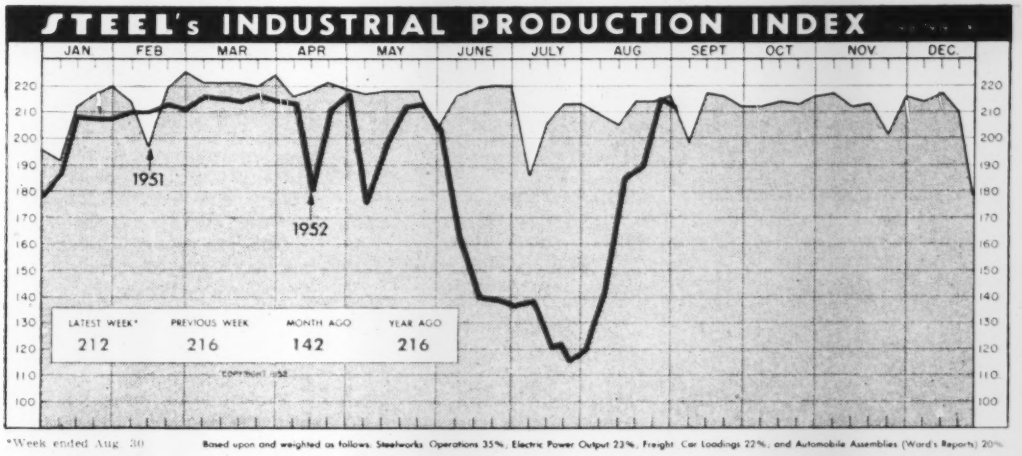
Graph-Mo also offers other advantages. It responds uniformly to heat treatment, permitting close tolerances in the parts. It has good stability, and is easier to machine than ordinary tool steels.

For information on the four Timken graphitic tool steels and their use in punches, dies, gages and machine parts, get the new 10th edition of "Timken Graphitic Steel Data Book". Write on your business letterhead to The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH



SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS TUBING



*Week ended Aug. 30 Based upon and weighted as follows: Steelworks Operations 35%, Electric Power Output 23%, Freight Car Loadings 22%, and Automobile Assemblies (Ward's Reports) 20%

Both civilian and defense industries may be forced into another violent struggle with inflation in the months ahead. Index dipped slightly as Labor Day neared

BUSINESS may be forced into another violent struggle with inflation in the coming months.

Assembly lines may slow down if prices continue to soar at present rates. The Labor Department says that prices of consumer goods and services rose 0.6 per cent in August for the average urban family. That's the biggest price jump since November, 1951. Its index will probably show another sharp rise for August, when the cost of food rose considerably. Now that the government has granted further price increases for steel products there seems to be little relief in sight from inflationary forces.

Cutbacks — Metalworking companies producing consumer items had a difficult time selling for over a year. Only in the past three or four months has the appliance industry seen a demand rise. But rising costs may reverse this uptrend and durables manufacturers again may have to cut production. Also higher prices may apply the brake on proposed defense output.

Right now the government plans to spend about 38 per cent more for procurement and construction in the year ended June 30, 1953, than it did in fiscal 1952. Defense spending will reach an estimated $33.6 billion this year, as compared with $24.3 billion in fiscal 1952 and $9 billion in fiscal 1951. But if costs continue to spiral upward, the government will have to either increase the tax load or restretch the defense program.

Index Dips—As many industrial operations slowed down at the start of the Labor Day weekend, STEEL's Industrial activity index dipped 4 points to 212 per cent of the 1936-1939 average in the week ended Aug. 30. That's the first decline in the index since the week ended July 17. Freight car loadings and electric power generation dropped substantially in the week ended Aug. 30, while steel and automobile production continued to rise.

Autoworkers Scarce . . .

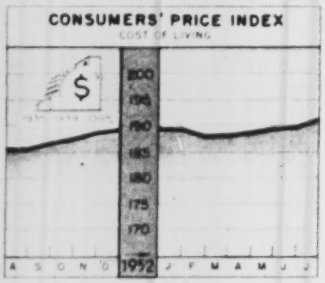
A labor shortage may retard the auto industry's drive for all-out production in September. This labor problem arises from the steel strike. During the steel tie-up, many unskilled and semi-skilled workers returned to their homes in other sections of the country or found new jobs. Now that production planners are hoping to increase output sharply, automotive companies are finding that the labor shortage, not materials, is the No. 1 problem.

Despite the coming of Labor Day, U. S. plants boosted passenger car output 14 per cent to pre-strike levels in the week ended Aug. 30. Assemblies totaled 95,032 units against 83,065 a week earlier, says *Ward's Automotive Reports*. Truck production rose 20 per cent that week to 22,224 units from 18,542 truck assemblies produced in the previous week.

Combined U. S. and Canadian automotive output totaled 125,001 passenger cars and trucks in the week ended Aug. 30, compared with 109,588 units turned out a week earlier. Although U. S. and Canadian plants have mostly returned to pre-strike assembly levels, production that week fell substantially under the year-ago level. U. S. and Canadian output totaled 137,479 passenger cars and trucks in the week ended Sept. 1, 1951.

Downtrend Reversed . . .

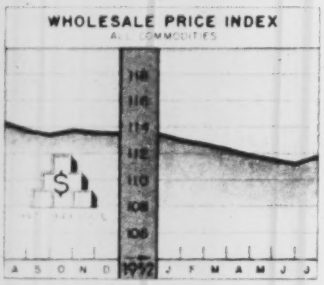
The downtrend in business conditions reversed itself during August, but the upturn is not the start of a new boom, says the National Association of Purchasing



Consumer Price Index
(1935-1939 = 100)

	1952	1951	1950
Jan.	189.1	181.5	168.2
Feb.	187.9	182.8	167.9
Mar.	188.0	184.5	168.4
Apr.	188.8	184.6	168.3
May	189.0	185.2	169.3
June	189.6	185.2	170.2
July	190.8	185.5	172.0
Aug.		185.5	173.4
Sept.		186.6	174.6
Oct.		187.4	175.6
Nov.		188.6	176.4
Dec.		189.1	178.8

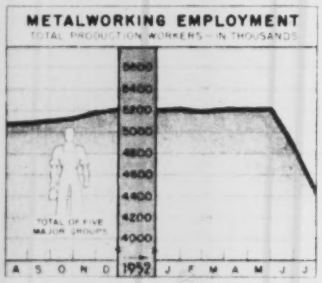
U. S. Bureau of Labor Statistics



Wholesale Price Index
(1947-1949 = 100)

	1952	1951	1950
Jan.	113.0	115.0	97.7
Feb.	112.6	116.5	98.3
Mar.	112.3	116.5	98.5
Apr.	111.8	116.3	98.2
May	111.6	115.9	99.6
June	111.3	115.1	100.2
July	111.8	114.2	103.0
Aug.		113.7	105.2
Sept.		113.4	107.1
Oct.		113.7	107.7
Nov.		113.6	109.3
Dec.		113.5	112.1

U. S. Bureau of Labor Statistics

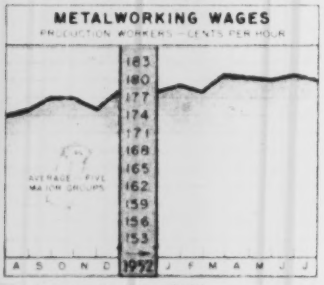


Metalworking Employment
In Thousands

Production Workers—Five Major Groups

1951	Prim. Mtls.	Fab. Prod.	Mach. inery	Elec. Mchy.	Trans Equip
July	1,155	813	1,235	684	1,187
Aug.	1,165	816	1,211	695	1,197
Sept.	1,199	811	1,219	709	1,217
Oct.	1,198	809	1,242	727	1,260
Nov.	1,151	804	1,255	737	1,242
Dec.	1,165	806	1,270	724	1,235
1952					
Jan.	1,163	804	1,276	725	1,240
Feb.	1,160	805	1,280	726	1,243
Mar.	1,154	807	1,280	722	1,266
Apr.	1,143	806	1,282	714	1,285
May	1,146	797	1,271	709	1,305
June	749	787	1,260	706	1,324
July	724	723	1,223	653	1,190

U. S. Bureau of Labor Statistics



Metalworking Wages
(cents)

Production Workers—Five Major Groups

1951	Prim. Mtls.	Fab. Prod.	Mach. inery	Elec. Mchy.	Trans Equip
Aug.	180.2	166.1	176.6	164.0	184.2
Sept.	183.0	168.2	178.5	164.6	185.4
Oct.	181.6	168.5	179.4	164.9	185.5
Nov.	181.9	168.9	179.7	165.5	189.2
Dec.	183.6	170.0	181.7	167.0	190.3
1952					
Jan.	184.7	170.3	182.0	166.9	191.4
Feb.	185.1	170.5	183.0	166.8	190.3
Mar.	184.8	171.5	184.1	169.5	193.4
Apr.	183.0	170.9	183.6	169.5	193.0
May	184.0	171.9	184.0	169.5	192.4
June	183.0	171.5	184.7	170.4	194.6
July	181.3	170.0	184.4	169.5	194.6

U. S. Bureau of Labor Statistics

Source: Copyright 1952 STEEL

Issue Dates on other FACTS and FIGURES Published by STEEL

Construction	July 21	Gray Iron Castings	Aug. 11	Ranges, Elec.	July 28
Durable Goods	Aug. 18	Index, Production	July 14	Ranges, Gas	July 28
Employ., Steel	Apr. 28	Orders	Aug. 25	Steel Castings	Aug. 11
Fab. Steel, Shop	Sept. 1	Machine Tools	Sept. 1	Steel Forgings	Aug. 11
Foundry Equip.	Sept. 1	Malleable Castings	Aug. 11	Steel Shipments	July 21
Freight Cars	Aug. 25	Pumps	Sept. 1	Vacuum Cleaners	Aug. 18
Furnaces	Aug. 25	Radio, TV	July 21	Washers	Aug. 18
Heat Sales	Aug. 25	Refrigerators	July 28	Water Heaters	Aug. 18

Agents in its monthly report. Main causes of the business rise were the settlement of the steel strike, the end of plant vacations and the usual seasonal pickup. This pickup was seen as a return to more normal conditions from an artificially low three months. Purchasing agents report that the gap between outgoing production and new orders closed for the first time in August since March, 1951. But much of this new business was in orders held back by the steel strike, says the association.

Industries dependent on steel will continue for a short time to feel the depressing effects of the strike. A majority of the purchasing agents, 58 per cent, estimated that schedule difficulties may be well ironed out by the end of the year.

Indicating the current cautious attitude toward buying, purchasing agents were interested in buying for only nearby requirements. The predominant policy is not over 90 days, with 30 to 60 days preferred.

Structurals Orders Rise . . .

As orders started to roll in at the end of the steel strike, bookings of fabricated structural steel rose 32 per cent above the previous month of July. Contracts were closed for 221,389 net tons, compared with 167,492 in the previous month and 222,540 net tons in the same month, 1951. Shipments of structurals that month totaled 135,860 net tons, well below the monthly average, but 8 per cent over June.

While the industry shipped substantially less structural steel in the first seven months of 1952, order backlogs in July remained below those of July, 1951. Shipments in 1952 totaled 1.4 million tons in the first seven months of 1952, compared with 1.6 million tons in the same period, 1951. Order backlogs totaled 2.4 million tons at the end of July, compared with 2.7 million tons structural steel on order on July 31, 1951.

Washer Sales Climb . . .

Following the uptrend in demand for most household appliances, sales of household washers in July rose 48.1 per cent over July, 1951. Factory sales of standard-sized house-

BAROMETERS OF BUSINESS

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Output (per cent of capacity)[2]	98.5	97.0	100.0
Electric Power Distributed (million kwhr)	7,450[3]	7,718	7,146
Bituminous Coal Output (daily av.—1000 tons)	1,833	1,650	1,791
Petroleum Production (daily av.—1000 bbl)	6,300[3]	6,282	6,232
Construction Volume (ENR—millions)	$353.9	$1,366.1	$257.4
Automobile, Truck Output (Ward's—units)	125,001	109,588	137,479
TRADE			
Freight Car Loadings (unit—1000 cars)	800[3]	834	829
Business Failures (Dun & Bradstreet, number)	140[3]	154	164
Currency in Circulation (millions)[3]	$29,129	$29,068	$28,034
Dept. Store Sales (changes from year ago)[3]	+2%	+2%	−2%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)	$15,065	$16,774	$13,962
Federal Gross Debt (billions)	$263.0	$263.0	$256.6
Bond Volume, NYSE (millions)	$16.3	$11.2	$11.0
Stocks Sales, NYSE (thousands of shares)	4,533	4,747	7,357
Loans and Investments (billions)[4]	$75.4	$75.6	$70.3
United States Gov't. Obligations Held (billions)[4]	$32.4	$32.5	$30.0
PRICES			
STEEL's Weighted Finished Steel Price Index[5]	181.40	181.40	171.92
STEEL's Nonferrous Metal Price Index[6]	223.2	223.2	224.6
All Commodities[7]	111.9	112.2	115.0
All Commodities Other Than Farm and Foods[7]	112.8	112.8	116.6

* Dates on request. [2]Preliminary. [3]Weekly capacities, net tons: 1951, 1,999,035; 1952, 2,077,040. [4]Federal Reserve Board. [5]Member banks, Federal Reserve System. [6]1935-1939=100. [7]1936-1939=100. [8]Bureau of Labor Statistics Index. 1947-1949=100. *Not available

hold washers in July totaled 207,593 units, compared with an industry total of 139,799 washers in July, last year, reports the American Home Laundry Manufacturers' Association.

Sales of automatic tumbler dryers reached 33,858 units, a gain of 28.9 per cent over units sold in the same month last year. Automatic ironers sold in July amounted to 15,025 units, a 35.4 per cent gain over ironer sales during June, 1951.

Coal Output Jumps . . .

While soft coal output this year has generally remained well below the weekly averages in 1951 a quick flurry in activity preceded the miners' week of mourning. The National Coal Association estimates that bituminous production reached 11 million net tons in the week ended Aug. 23. That tonnage is the highest weekly total since February and 251,000 net tons over bituminous output in the corresponding week, 1951.

Inventories Tumble . . .

Manufacturers' inventories in July plunged about $2.9 billion, says the Commerce Department. Main factor in the drop was liquidation of stocks of durable goods, which plunged $3.4 billion that month. Increased inventories among manufacturers of soft goods advanced during the month. Inventories were drawn down most heavily in plants producing fabricated metals, machinery and motor vehicles and in other plants using large amounts of steel.

TV Production High . . .

As the political campaigns become warmer, makers of television sets are finding that the public is demanding more of their products. Output of television receivers in July rose 34 per cent over the same month in 1951, says Radio-Television Manufacturers Association. The industry turned out 198,921 TV sets in July, compared with 148,926 sets in the same 1951 month. The July radio output dipped 5 per cent to 441,736 units from 465,067 units turned out in July, 1951.

Trends Fore and Aft . . .

Business failures continued to increase moderately by reaching 154 casualties in the week ended Aug. 21, compared with 130 mortalities in the same week, 1951 . . . Production levels of industrialy important inorganic chemicals are falling below last year's.

MEYCO saws and cutters in various diameters and thicknesses can be furnished to your individual specifications. MEYCO cutters have earned an enviable reputation where long tool life and precision are a must.

Increase production in your slotting, venting and slitting operations by using MEYCO cutters. Please furnish complete specifications and quantities desired when requesting prices and indicate material to be cut.

Manufacturers of precision tools since 1888

W. F. MEYERS CO., INC.
BEDFORD, INDIANA

Speed Nut Savings Stories

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Special SPEED NUT design for O. A. Sutton Corp., Wichita, Kansas, doubles production and gives a cool 50% savings on materials too!

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THE OLD METHOD
Riveted attaching clip A, die cast collar B, special bracket piece C, were required to assemble grille, reflector cone assembly, and motor mount brackets to motor housing.
SPEED NUT METHOD
Special SPEED NUT and redesigned motor mount bracket eliminate A, B, and C. Permit direct attachment of grille and reflector cone assembly to motor housing.

Men of Industry

H. H. SHAKELY
. . . works mgr. at Otis Works

H. H. Shakely was appointed works manager, Otis Works Division, Cleveland, **Jones & Laughlin Steel Corp.** He replaces **G. S. Ashmun** who is retained on the works manager's staff. **H. P. Saxer** was made assistant works manager-production, Pittsburgh Works division and is succeeded by **N. C. Atwood** as assistant works manager-general services, Pittsburgh Works.

Hewitt Smith, formerly vice president, mining, **Woodward Iron Co.,** Woodward, Ala., was made vice president in charge of operations. **John W. Hager,** chief mining engineer, was made general superintendent, mining operations. **Thomas N. Kirk** becomes chief mining engineer and is succeeded by **Paul R. Ford** as superintendent at Mulga Mine. **M. T. Gilchrist Jr.** was made superintendent, Dolomite Mine, and **S. E. Sullivan,** assistant superintendent, Mulga Mine.

Lee N. Blugerman, formerly of Budd Co., was appointed executive assistant at **Crane Co.,** Chicago.

Detroit Steel Corp., Detroit, appointed **Lloyd A. Martz** assistant manager of sales, Detroit district sales office. Previously associated with Portsmouth Steel Corp., he joined Detroit Steel in 1950. **Ben E. Young** was elected a director.

FRANK T. DOWNS
. . . Houdaille-Hershey sales mgr.

Frank T. Downs was appointed manager of sales, **Houdaille-Hershey Corp.,** Detroit. He has been assistant divisional sales manager.

James J. Barrett was made sales manager, **Gemmer Mfg. Co.,** Detroit. He had been with Bishop & Babcock Mfg. Co. for 15 years.

Charles Kuhn was appointed sales manager, **Fansteel Metallurgical Corp.,** North Chicago, Ill.

Lockheed Aircraft Corp., Marietta, Ga., named **C. H. Roha** manager, outside manufacturing division-purchasing department.

LeRoy J. Fralick returns to **Midland Steel Products Co.,** Cleveland, as vice president and director of sales. He held these positions until July, 1950, and since has served in a consulting capacity.

W. C. White was elected executive vice president, **Garrett Corp.,** Los Angeles. He retains the position of manager of the Airsupply Division.

Dr. Maurice J. Day, a metallurgical engineer in the Pittsburgh plant of U. S. Steel Co., was named manager, materials and processes division, **Armour Research Foundation,** Illinois Institute of Technology.

WILLIAM J. KINGSLEY
. . . asst. gen. sales mgr. at Carborundum

William J. Kingsley was appointed assistant general sales manager, **Carborundum Co.,** Niagara Falls, N. Y.

W. H. Leo, Dallas district manager for **Sheffield Steel Corp.,** was appointed sales manager in the firm's construction products division at Kansas City, Mo.

Herbert F. Ziegler Jr. was appointed manager of the Kansas City, Mo., district office of **Sterling Electric Motors Inc.**

Acme Steel Products Division, Acme Steel Co., announces changes in the western area sales staff: **Howard H. Gamble** was appointed special representative of the Los Angeles district for industry-wide development work in container reinforcement and carload bracing. He is replaced as sales representative in Los Angeles by **Ray D. Vilas. E. J. McGraw** was transferred from the Pacific Northwest to the San Francisco district, and **Arthur B. Hall** transfers from south-central California to San Francisco.

William J. Henry was named manager, Homewood manufacturing and repair plant, Cincinnati, for **Westinghouse Electric Corp.** He succeeds **John H. Thomas,** appointed manufacturing manager at the

firm's East Springfield, Mass. plant. **Richart T. Nalle Jr.** was named manager of production, Aviation Gas Turbine Division.

Whiting N. Shepard was promoted to director of sales, **Boston Woven Hose & Rubber Co.**, Cambridge, Mass. He formerly was head of plastics sales.

Kenneth D. True was elected vice president and general manager, **United Stove Co.**, Ypsilanti, Mich., subsidiary of Gar Wood Industries Inc. Mr. True, on special assignment since joining Gar Wood last March, was formerly plant manager of Sheet Metal Specialty Co. **Robert G. Ferguson** and **F. Clark Bushong** continue with United Stove as manager of consumer sales and manager of contract and government sales, respectively.

Edward L. Bohn joined **Mullite Refractories Co.**, Shelton, Conn. He will act as research consultant on furnace maintenance and construction.

Robert E. Hensley was assigned to the Tulsa, Okla., office of **Cooper-Bessemer Corp.**

Blaw-Knox Co., Pittsburgh, appointed **George L. Dirks** general manager, Blaw-Knox Division, Blawnox, Pa. He succeeds **D. V. Sherlock** who returned from retirement to serve temporarily as acting general manager of the division.

GEORGE L. DIRKS
Blaw-Knox Div. mgr.

JOHN I. SOMERS
a Yale & Towne sales mgr.

Yale & Towne Mfg. Co., Philadelphia, appointed **John I. Somers** as sales manager for Worksaver electrically-operated hand lift trucks and **T. F. Moriarty** as sales manager for manually-operated hand lift trucks.

John S. Devlin was appointed Houston district sales manager, **Continental Can Co.**, and **Bruce R. Petersen** was appointed district sales manager at Milwaukee.

Jackson & Church Co., Saginaw, Mich., appointed **W. H. Tonner** factory representative in metropolitan New York and northern New Jersey.

Pittsburgh Bridge & Iron Works, Pittsburgh, appointed **T. Chase Carhart** consulting engineer, **Paul G. Nagle** chief estimator, and **Harry R. Cameron** chief engineer.

Case Chemical Co., Cleveland, named **Leo Monroe** manager of its machine tool division. Until recently he was with Oliver Corp. as a methods engineer.

T. G. Winterton was appointed advertising manager, **Latrobe Steel Co.**, Latrobe, Pa. He has been serving as assistant to the sales manager.

Continental Screw Co., New Bedford, Mass., appointed as representatives **Dean B. Skillin**, covering Delaware, Maryland, Pennsylvania, District of Columbia and the lower part of New Jersey, and **Frank M. Hart**, assigned to Indiana, Wisconsin and upper Michigan.

T. F. MORIARTY
a Yale & Towne sales mgr.

August R. Ryan was named manager of sales for furnaces and associated equipment of **General Electric Co.'s** industrial heating department.

William P. Sims was appointed branch manager of the Norfolk, Va., branch of **Fruehauf Trailer Co.**

C. P. Boggs was appointed vice president in charge of manufacturing, **Brush Development Co.**, Cleveland. He formerly was with Sylvania Electric Co. where he served as vice president and director of manufacturing.

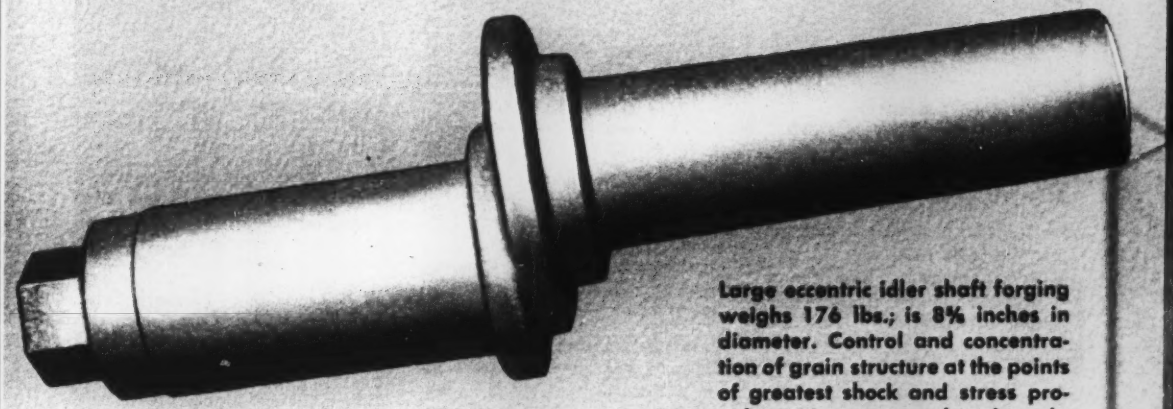
Ethan A. Ball succeeds **Jonathan Jones**, retired, as chief engineer, fabricated steel construction division, **Bethlehem Steel Co.**, Bethlehem, Pa. **W. H. Jameson** was made assistant chief engineer, bridges and buildings, same division, to succeed Mr. Ball.

A. J. Kreiner was appointed manager-manufacturing division by **Pacific Airmotive Corp.**, Burbank, Calif.

National Electric Products Corp., Pittsburgh, appointed **Luther D. Shank** as assistant to **R. C. Bennett Jr.**, vice president and general sales manager, and in addition to be in charge of Pittsburgh district

TRANSUE FORGINGS

USUALLY COST LESS AT THE POINT OF ASSEMBLY



Large eccentric idler shaft forging weighs 176 lbs.; is 8¾ inches in diameter. Control and concentration of grain structure at the points of greatest shock and stress provide maximum strength and toughness for dependable performance.

Consult our engineers when you are contemplating conversion to forgings or when you are in need of reliable forging service.

TRANSUE & WILLIAMS

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OVER 50 YEARS OF FORGING PRODUCTION EXPERIENCE

CHARLES R. GORDON
supt. of machine shops at Midvale

J. P. DONALD GARGES
V. P.-eng., East Coast Aeronautics

ROGER M. BLOUGH
dir.-finance committee, U. S. Steel

sales. Mr. Shank retired as director of NPA's electrical division.

Midvale Co., Nicetown, Philadelphia, appointed **Charles R. Gordon** as general superintendent of machine shops. **James R. Steele** is Chicago district sales manager.

George E. Jennings was appointed West Coast district manager for **Davey Compressor Co.**, with headquarters in San Francisco.

William E. McCullough was appointed sales engineer in parts of Pennsylvania, Ohio and West Virginia for **Capewell Mfg. Co.**

Billings & Spencer Co., appointed **J. B. Lyons** southern sales representative with headquarters in Atlanta.

East Coast Aeronautics Inc., Pelham Manor, N. Y., a subsidiary of Barium Steel Corp., appointed **J. P. Donald Garges** vice president, engineering and assistant general manager. He has held the position of chief engineer since 1948.

W. H. Moore was appointed factory sales engineer, aircraft controls division, **General Controls Co.**, Glendale, Calif.

Dr. Carl R. Freberg was appointed assistant director of **Borg-Warner Corp.'s** research laboratory in Bellwood, Ill.

Alan E. Schwartz, Detroit attorney, was elected to the board of directors of **Kaiser-Frazer Corp.**, Willow Run, Mich.

Roger M. Blough, vice chairman of the board, **United States Steel Corp.**, New York, was elected a director and a member of the finance committee.

W. B. Lewis Jr. of Torrance, Calif., was named West Coast sales representative of **Bohn Aluminum & Brass Corp.**

Don Faulkner, formerly with Boeing Airplane Co., was appointed a sales engineer with **Hydro-Aire Inc.**, Burbank, Calif.

J. G. Connolly was appointed general counsel and secretary, **Audio & Video Products Corp.**, New York. **Kenneth B. Boothe** was elected a vice president and also director of its instrumentation division.

OBITUARIES...

Eric H. Nelson, chairman of the board of **Cuyahoga Steel & Wire Co.**, Cleveland, died in Massillon, O., Sept. 1. For some years before retirement in 1950 he was vice president in charge of the Massillon, O., works for Griscom Russell Co.

Joseph O. Kilian, 59, a leader in development of the steel industry in southern California and for years associated with **A. M. Castle & Co.** and **American Rolling Mills**, died in Los Angeles Aug. 20.

G. V. Barber, 72, co-owner of **Barber & Batten Sheet Metal Co.**, Oklahoma City, Okla., died Aug. 26.

Gerrit Waalkes, 66, who retired six years ago as president, **Anchor Steel & Conveyor Co.**, Detroit, died Aug. 25.

James G. Sterling, 72, pioneer of the automotive engineering field, died Aug. 31. He started his career with F. B. Stearns Co., Cleveland. In 1921 he designed the Sterling-Knight car and was vice president and chief engineer, Sterling-Knight Motor Co. He later became general manager and chief engineer, American Cirrus Engine Co., Marysville, Mich., airplane motor manufacturing concern. Following World War II and until retirement last spring he was vice president, **West Steel Casting Co.**, Cleveland.

William B. Robinson, 75, former advertising manager in the Pittsburgh area for *Iron Age*, died. He was forced to retire some 15 years ago after a paralyzing stroke.

J. H. Glass, 62, manager of **General Motors Corp.'s** Chevrolet pressed metal plant in Flint, Mich., died Aug. 25. He joined Chevrolet in 1931.

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THESE research men are seeking new cost cutting answers to your foundry molding and core blowing problems. They start by gathering facts in your shop, then test and retest hundreds of time saving ideas in Osborn's own proving grounds before machinery recommendations are made to you. This down-to-earth approach is why you can be confident every time you consult Osborn first on your foundry needs.

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SAN FRANCISCO • MONTREAL

Production and Engineering
NEWS AT A GLANCE

GOOD NEWS FOR TAXPAYERS—The Navy's conservation program for the fiscal year of '52 ended with the recovery of 393,350,000 pounds of critical metals. Scrap iron alone amounted to 175,940 tons. Sale of all types of scrap brought the Navy $7,090,438. Over 24,000,000 pounds of the copper scrap recovered was not sold, but reissued as government furnished material, or on an exchange basis.

BUILDING UP COSTS LESS—A little vision combined with applied knowledge often pays handsome dividends. Case in point involves a forging die to turn out tool steel claw hammers for the Navy. Past practice of shaving off the face of the die, then resinking it every time it was worn was thrown out the window. Instead a reverse procedure was used—that of building up the die by welding. The method was faster, which meant less downtime, and naturally, more output. In fact, the welding method doubles the life of forging dies at about half the cost of maintaining them under the former practice of continuing them in operation. p. 86

LIGHT RAYS DETECT METAL BUGS—Invisible light rays are being used by automotive metallurgists to watch the quality of metals going into motor vehicles. A new instrument does it—making instantaneous electronic analysis of the rays with little chance of human error. The results, obtained by measuring ultraviolet light radiating from burning metal alloys set ablaze by heat from a 25,000 v charge, are recorded instantly by clock-like dials on the instrument face.

SCALE GETS A SETBACK—If you're having scale trouble with your boilers, here's a development that will make the word "down-time" a stranger in your vocabulary. Babcock & Wilcox has come up with a new additive which, when mixed with fuel oil, keeps boilers operating longer by eliminating clinkerlike deposits in the boiler tubes. The additive was developed at the company's research and development center, Alliance, O.

PROBLEM STILL UNSOLVED—Hydrogen is normally present in all steels in very small amounts, usually 0.0003 per cent or less. Its practical significance in steel never has been completely established, but it is believed that it contributes to flaking or rupturing of the metal. Major source of hydrogen in steelmaking is moisture picked up from rust on scrap, iron ore and products of fuel combustion. J. & L says that while methods of analysis for hydrogen in steel have been fully developed, the problem of obtaining a reliable sample of molten steel for determining hydrogen has not been entirely solved. Research on control of hydrogen during steelmaking has not progressed as far as the control of oxygen and nitrogen. Certain elements such as zirconium and titanium, are capable of removing nitrogen from liquid steel, but there is no element known to react the same way with hydrogen.

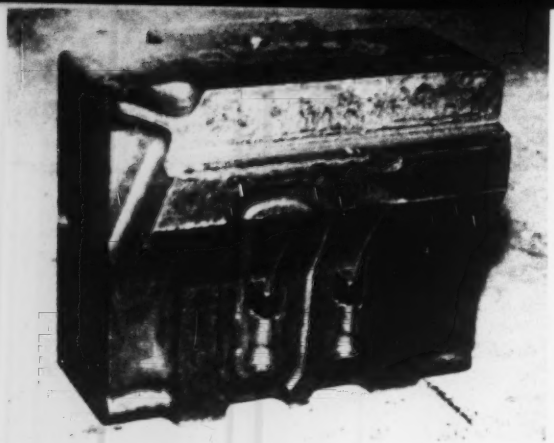
TIPS ON TITANIUM—Several factors have been uncovered thus far in working with titanium according to Worcester Pressed Steel Co.'s experience. For one thing, in forming operations, the metal takes more pressure than does stainless steel. It was found to wrinkle around the top of drawn cups. Thus, higher blank holder pressures are needed. It also was discovered that titanium will not be hurried—press speeds have to be reduced. p. 92

"WASTE" SAVES MONEY, MATERIALS—Eying the scrap being produced at the punch presses gave plant engineers at Ryan Aeronautical an idea that hit the jack pot. It was one that saves money, conserves critical alloys and performs a better job—all at the same time. The idea: Making pickling containers from the stainless scrap which is produced in punch pressing exhaust system flanges. The baskets are made by straightening the scrap, cutting it to length and arc welding the pieces together. They last an average of 3 months compared to a 10-day average of the previous containers.

GENERATOR COOLING FASTER—A 200,000 kw generator now being built by Westinghouse for the Philadelphia Electric Co. will take less copper and steel per kilowatt of generator output due to a system of inner cooling both its rotor and stator. Hollow generator conductors through which the hydrogen gas is passed do the job. The hydrogen is brought in direct contact with the copper conductors to increase the cooling effect of the gas. The turbine-generator also is the largest single shaft unit built by the company.

METALWORKINGS—By using induction heating for forging transmission gears, Chevrolet's Saginaw Transmission Division raised output on six forging operations from 9.6 to 64.3 per cent (p. 88) . . . One for three transformation (p. 94) stabilizes power output for Consumers Steel. The single generating unit reduces outages and saves on operating costs . . . New zinc smelting process for the first time uses an electric arc furnace. Result: Residue is tapped off as molten slag instead of a solid . . . Production pace of turning out 105 millimeter gun tubes (p. 99) doubled with a switch of tools . . . So technical advances don't better the lot of labor? The impact of the 4-high mill (p. 100) was virtually a chain reaction . . . New radical design and welding produce an unusual dozer (p. 96). It also saves 1150 pounds of steel.

Metalworking Outlook—p. 49 Market Outlook—p. 157



Male die showing wear on die block. The drop forging die is used to form claw hammers for Navy

Welding

By ARTHUR L. PHILLIPS
Eutectic Welding Alloys Corp.
New York

Tool steel claw hammer output goes up as forging die downtime is trimmed. Reversing procedure of extending die life—from shaving to building up by welding—does it

ONE OF the most desirable qualities in industry is vision; the ability to see beyond initial cost of an operation to the ultimate advantages to be gained. Similarly, the possession of knowledge is useless without the ability to apply it.

When vision is combined with applied knowledge, this co-operation is reflected in increased production, reduction in cost, fewer rejects, and an overall saving in materials and equipment.

It was these qualities that enabled a die shop foreman and a welder to develop a means of prolonging the life of drop-forging dies used in the manufacture of tool steel claw hammers.

The normal productive life of such a die was under 40,000 forgings, but by the use of a carefully thought out welding technique using the new alloys, combined with a resinking sequence, it was possible to double this production.

The Problem—The die blocks were made of an oil hardening, high quality alloy and carbon steel, and operated at a pressure of approximately 1 ton. The male die weighed 480 pounds and the female section, 520 pounds. Cost of the two sections was approximately $200, but after 125 hours of machining to sink the dies correctly, their cost amounted to more than $800 a set.

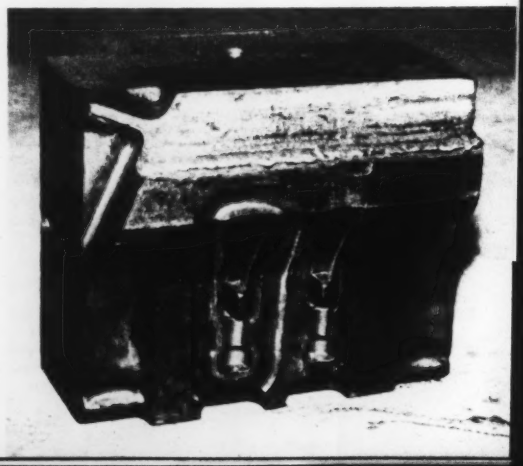
The repeated impact of the forging operation concentrated wear on the die block, which was a 1 x 12-inch section of the male die that maintained proper alignment of the two halves.

The usual procedure was to shave off the face of the die and resink it. It was possible to resink these dies only three times, including the original sinking. Each die could turn out 12,000 forgings before resinking became necessary, so life of a die was limited to 36,000 to 40,000 forgings.

The Solution—It was decided to reverse the conventional procedure and to build-up the die block section instead of shaving it off, and to continue with this welding technique until the impressions in the face of the die would no longer produce satisfactory forgings. When this stage was reached the die would be resunk. In practice it was found that this alternate welding and sinking sequence could be operated through three sinkings and approximately eight weldments.

It was possible by this means to produce at least 80,000 forgings, and one particular die produced 96,000 without a sign of failure. This more than doubled the output of each die.

Welding Procedure—Here's what was involved in the build-up: The face of the male die was preheated



Completed build-up by welding before machining. Deposits are allowed to cool before slag removal

Doubles Life of Forging Dies

by laying four 2 x 12-inch red hot steel bars upon it. These were left in place until the dies and the bars were about the same temperature.

EutecTrode 670 was selected for the build-up because of its high affinity for high carbon and special steels. This was manifested by its ease of application and the surface alloying; the penetration of the atoms being directly related to the degree of affinity. It has a tensile strength up to 90,000 psi, it is machinable, and it will work harden in use.

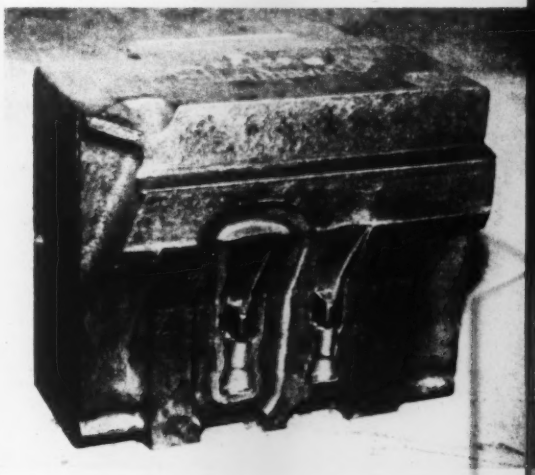
Each Pass Cooled—The machine was set at 180 amp on reverse polarity and a 3/16-inch rod inserted into the holder. The heated bars were removed and continuous stringer beads were run, using a short to medium arc. Each pass was allowed to cool before chipping the slag, and the arc was directed at all times upon the deposited metal. To avoid crater cracking, the arc was brought back and smothered upon the deposit. The deposits were peened to relieve residual stresses.

Fusion with the base metal was avoided. The surface alloying technique was used to obtain a bond, and at no time was the parent metal permitted to reach a melting heat.

The die block was built up ¼-inch and later machined to leave an approximate build-up of ⅛-inch.

What It Cost—The cost of this repair was out of all proportion to the overall savings involved. It restored the part to service in 4 hours as against a delay of 3 weeks to have the face machined and the new impressions cut.

Total cost of the repair was $9.08 against a resinking cost of $600. This saving was sufficient in itself to warrant adoption, but it was only part of the plan developed.



Here die is shown finished — machined and ready for use. Welding saved about $2000 on each die

The life of the die was three sinkings and they involved an investment of $1800 to produce a total of 40,000 claw hammers for the Navy. With an additional outlay of $72.64, for building-up the face eight times, it was possible to double the production of these hammers.

Prior to this development a die was scrapped after three sinkings and a new one purchased. Each die cost $200 plus the cost of three sinkings at $600 each, making a total of $2000.

The outlay was therefore $4000 for two dies, against $2074.64, for one die maintained by welding. It took 3 weeks to resink a die, so when two dies were resunk three times each, they were unproductive for a period of 18 weeks, whereas only half this time was lost with the new method. Furthermore, greater production was attained with the repaired die than with two new ones.

Other Savings — These savings were the obvious ones and did not take into account the hidden expenses involved. Each operation added its quota to the cost, and the reduction of any work involved reduced the expense and added to the savings.

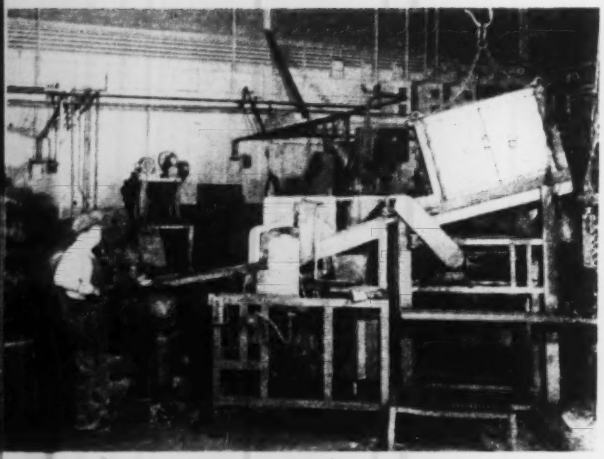
The use of milling cutters and their wear and breakage was reduced; the grinding time on the hammers was minimized greatly; and maintaining die alignment by welding reduced after grinding time by one third.

All this was made possible by foresight and applied knowledge. The welder knew his trade and welding trends. He knew, therefore, the correct electrode to specify for the repair, and the way to apply it. This eliminated the danger of damage to the die by distortion, warpage, or embrittlement.

New trends in welding have developed side by side with increased metallurgical knowledge. It is no longer necessary to melt the parent metal to obtain bonds of the desired strength. The high heat of fusion welding is likely to destroy the properties of the base metal, and the facilities necessary for preheating and postheating, together with controlled cooling so vital to fusion welding, are rarely available.

High-Geared Production

WITH INDUCTION HEATING



Sheared-to-length bar stock at clutch gear heating station rolls by gravity into the chute on automatic feeder

Increased output on six forging operations ranges from 9.6 to 64.3 per cent in addition to improving heat control, die life and general working conditions

IMPROVED productivity, heat control and die life are leading benefits realized at Chevrolet's Saginaw Transmission Division by converting to induction heating for forging of transmission gears. The General Motors division reaps additional benefits from reductions in cleaning costs and scale loss. Aside from the economic factors, working conditions and plant cleanliness are improved.

Eliminating operator control of the forging process allows management to set production rate in terms of production per a fair day's work. Heated stock flows steadily to the forging machine at a rate paced to the maximum productivity of the forging equipment. Increases on the six forging operations are: Clutch gear, 44.6 per cent; idler gear, 27.8; mainshaft, 9.6; counter gear, 55.6; second speed gear, 64.3; first and reverse gear, 37.3. All this is accomplished with eight less men on a two shift basis.

Partly offsetting the gains resulting from the shift are increased heating costs, higher maintenance costs, more down time due to equipment's greater complexity and a higher changeover cost. These factors make it necessary to examine each change to a new heating medium on its own merits to determine whether the plusses overcome the minuses in making the change.

Heater stations at each of the forging machines are standard Budd units now made by Tocco Division, Ohio Crankshaft Co., Cleveland. There are seven model G heaters and one CBH heater. Modifications have been made to the heaters since installation but basically their designs remain standard.

Clutch Gear Station—The clutch gear is forged on a 3-inch National upsetter. Three passes (die impressions) are required to form the part. The 1 3/16-inch diameter bar stock is sheared to a 16¼-inch length and placed in a special hopper at the shears. This hopper is loaded by an overhead crane on an automatic loader. Bars roll by gravity into the chute on the automatic feeder. They are prevented from piling up by rotating rubber wheels which allow only one bar at a time to roll into the chute.

Automatic feeder consists of a stock chute, mechanically operated escapement, pusher cylinder and guide, dump tray and the necessary electric and air controls. When the heater is started, the escapement allows one bar to drop into the dump tray. Pusher cylinder is actuated to push the part into the heating coil. Stock is located in the coil by the ejector cylinder

rod which acts as a stop gage.

A limit switch, actuated by the ejector cylinder rod, closes the main contactor and starts the timing cycle. The power remains on the coil for the duration of the timer setting. At a preset time, the ejector rod is actuated, forcing the heated billet out of the coil into the dumping tray. The main contactor is also opened; interrupting the power to the coil.

Dump tray actuated through a time delay relay dumps the heated billet down a chute to the operator. The cycle is then repeated automatically while the operator is forging the gear.

Idler Gear Station — The idler gear is forged on a 4-inch Ajax upsetter. Three passes are required to form the part. An additional pass is used to shear the punchout nubbin from the bar end.

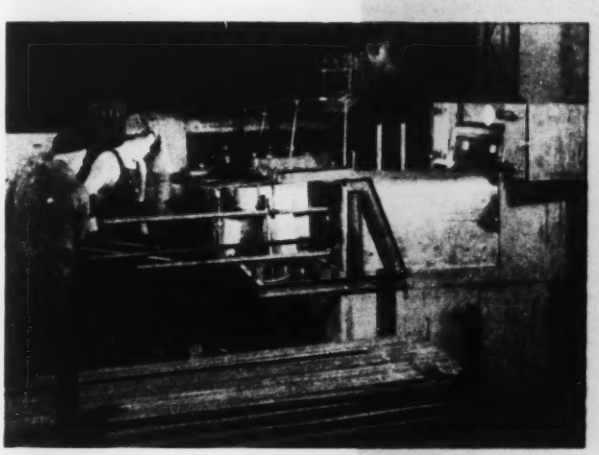
The $1\frac{5}{16}$-inch diameter bar stock is sheared to an 80-inch handling length and loaded on a skid. The skid of stock is placed next to the four station heater unit.

Heater station consists of a model G Budd heater with four heating coils mounted on the work table. The coils are connected in parallel and the high frequency power is applied across the coils continuously whether loaded or empty. No feeder or loader is used.

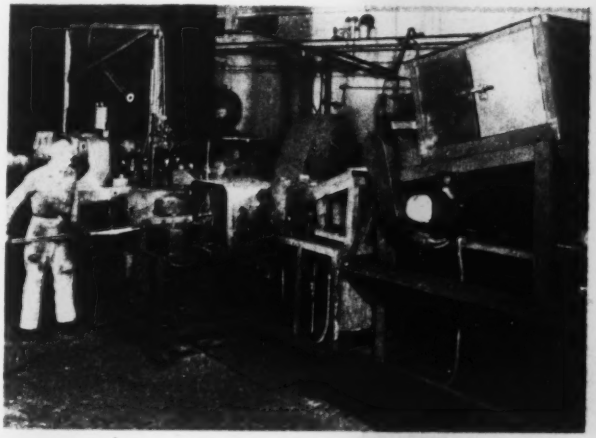
Hand Loaded—Coils are loaded manually by an experienced heater. One end of the 80-inch bar is placed in the coil, and 9 inches heated to forging temperature. The bar is handed to the operator who forges the gear from the hot end. After shearing off the punchout nubbin, he returns the bar to the heater for reheating.

Ten forgings are made from one bar. Five bars are used simultaneously, and are in varying stages of heating and forging. The heater cycles the loading to maintain a constant flow of heated bars to the upsetter.

Dual Problem—Two heating conditions are encountered on this job. The new bar is cold when put in the heating coil; while the rerun bar has about 2 inches of residual heat in the end of the bar. The coil is taper-wound to provide an even heat on reruns. New bars are preheated by placing 5 inches



Four heating coils at idler gear station are connected in parallel and high frequency power applied continuously



Rotating rubber wheels allow only one 21-inch bar to roll down chute at a time during counter gear heating

of the cold end into the coil for 25 seconds. The bar is then pushed the rest of the way into the coil to the regular heating location, and left in for the same time as the rerun bars.

Heating time is regulated by timers. The bar is pushed into the coil and located by a push-out cylinder which acts as a stop gage. After a preset time, the push-out cylinder is actuated to partially eject the bar from the coil. Signal light indicates proper positioning of the bar in the coil and the heating cycle time.

Mainshaft Station — The mainshaft is forged on a 4-inch upsetter. Three passes are required to form the part. The 1⅛-inch diameter stock is sheared to a 14 1/16-inch length and placed in a special hopper at the shears. This hopper is loaded by overhead crane onto the automatic loader. Heating station and stock handling is identical to the clutch gear heating station.

Counter Gear Station — The counter gear is forged on a 5-inch Ajax upsetter. Five passes are required to form this part.

Heating installation varies from the other jobs in that two separate heating coils are used. The cold billet is pushed into the first coil and heated rapidly to 2200° F on the surface. The core is only up to 1800° F at this time. The billet is then ejected and pushed into a second coil (soaking coil) where a low power input is used to maintain the surface temperature and equalize the core temperature. Result is an even heat throughout the billet.

Second speed gear unit was revamped to make it into a continuous type billet heater. Chute is manually loaded

The 1⅝-inch diameter bar stock is sheared to a 21-inch handling length, and placed in a special hopper at the shears. This hopper is loaded by an overhead crane onto the automatic loader. Bars roll by gravity into the chute on the automatic feeder. They are prevented from piling up by the rotating rubber wheels which allow only one bar at a time to roll into the chute.

Smooth Work—As the first coil is being automatically reloaded, a pusher cylinder for the soaking coil is actuated and pushes the partially heated billet into position in the soaking coil. The partially heated billet pushes the heated billet in the soaking coil, out through the front, into a dump tray, which dumps the hot billet down a chute to the upset operator.

Power to the soaking coil is taken from the same bus as the first coil. It is turned on and off with the first coil.

Billet is in the heating and soaking coil for the same time interval. A reactor coil is used in series with the soaking coil to reduce the voltage per turn. This reduces the

INDUCTION HEATING OPERATING DATA

	CLUTCH GEAR	IDLER GEAR
Stock size	1-3/16 in. round	1-5/16 in. round
Handling length	16¼ in.	80 in.
Heated length	11½ in.	10 in.
Number of coils on heater	1	4
Pieces in coil at one time	1	1
Power on coil	on and off	continuous
Total heating time	9 seconds	42 seconds
Total cycle time per piece	13 seconds	11½ seconds
Electrical length of coil	14½ in.	12½ in.
Inside diameter of coil winding	2⅜ in.	2⅞ in.
Size of coil tubing	5/16 in. x 35/64 in. flat wound	¼ in. x ½ in. edge wound
Number of turns of coil	24	41
Voltage on coil	400 volts	400 volts
Maximum current	475 amp	250 amp

amount of heat input to the part.

The billet length is 21 inches, but only 16½ inches of this is heated. The cold end is gripped in a pair of tongs, and the counter gear is forged from the heated section of the stock. The end used for the tong hold is then placed in a gondola. It is later used to make a second speed gear.

Second Speed Gear Station—The second speed gear is forged on a five-inch Ajax upsetter. Four passes are required to form this part.

The model G heater for this installation was revamped to make it into a continuous type billet heater. This was accomplished by mounting a long coil on the work table at right angles to the heater and changing the controls to give continuous power on the coil. The cycle is controlled by means of continuous timer which operates the automatic feeder. The feeder was altered by discontinuing the dump tray and using a hydraulic pusher instead of air.

The 1⅞-inch diameter stock used is the tong hold from the counter-gear forging operation. It is manually loaded into the chute on the automatic feeder.

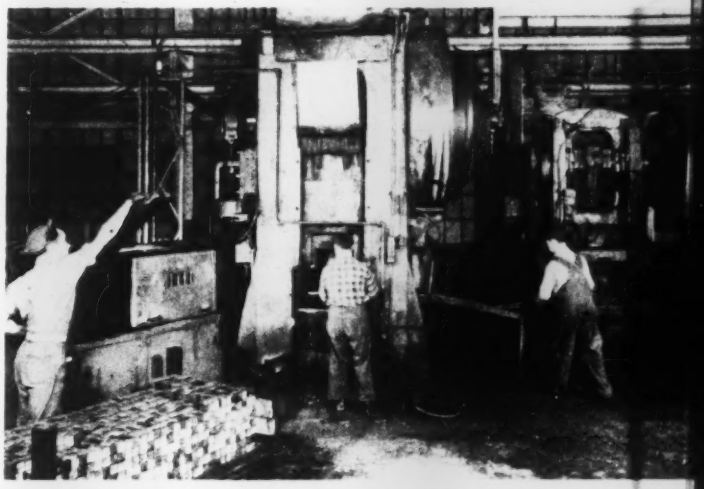
Automatic feeder consists of: Stock chute; a mechanically operated escapement; hydraulic pusher cylinder and guide; and the necessary controls. When the heater is started, power is applied to the coil through a magnetic contactor, and remains on the coil until the heater is shut down. The escapement allows one bar to drop into the pusher tray, and the hydraulic pusher is actuated to push the billet into the coil. The pusher returns to its starting position. The timer, which runs continuously, times out and actuates the pusher again to inject another billet into the coil, pushing those already in the coil ahead.

This cycle repeats continuously, and at each time interval, a heated billet is pushed out the front of the coil in position for the upsetter operator to grip with his tongs. The gear is then forged in the upsetter.

First and Reverse Station—The first and reverse gear is forged in a 1000-ton Ajax press. Two passes are required to form this part. After forging, the gear blank is manually transferred to a No. 57 Toledo press, and is hot trimmed to remove the flash.

Model CBH heater is used in this installation. It has a self-contained hydraulic automatic feeder mechanism and one long continuous coil which is mounted on the work table in line with the feeder.

The 2-inch round corner square stock is sheared to a handling length of 3⅝ inches and loaded on



First and reverse gear station has a self contained hydraulic automatic feeder and one long continuous coil mounted on the work table

MAINSHAFT	COUNTER GEAR	SECOND SPEED GEAR	FIRST & REVERSE GEAR
1⅛ in. round	1⅜ in. round	1⅜ in. round	2 in. RCS
14-1/16 in.	21 in.	7¾ in.	3⅜ in.
12 in.	16½ in.	7¾ in.	3⅜ in.
1	2	1	1
1	1	3	
on and off	on and off	continuous	continuous
9½ seconds	17½ seconds	43½ seconds	99 seconds
14	22½ seconds	14½ seconds	11 seconds
14½ in.	19½ in.	30 in.	30½ in.
2⅜ in.	2⅞ in.	3½ in.	3⅝ in. x 3⅝ in.
5/16 in. x 35/64 in. flat wound	¾ in. x 5/16 in. flat wound	½ in. x 1 in.	½ in. x 5/16 in. flat wound
24	24	23	56
400 volts	400 volts	359 volts	850 volts
500 amp	700 amp	325 amp	150 amp

a skid at the shears. The skid of stock is placed by the heater station. The billets are manually loaded into the stock chute of the feeder. The feeder consists of the stock chute; a hydraulic escapement; a hydraulic pusher; and the necessary controls.

When the heater is started, power is applied to the coil through a magnetic contactor, and remains on the coil until the heater is shut down. The escapement allows one billet to drop into the pusher tray, and the hydraulic pusher is actuated to push billet into coil.

Coil is of sufficient length to hold nine billets end to end. The pusher returns to its starting position, and the timer, which runs continuously, times out and actuates the escapement gate to start the cycle again, and injects another billet into coil. The billets are thus moved progressively through the coil and are continuously heated. They reach their final temperature at the end of the coil, and drop down a chute to the press. The heated billet is picked up by the operator with a pair of tongs and is forged in the press.

Custom Made—Heating coils for each of the six different stock sizes are individually designed for the particular steel diameter and length being heated. There are three different styles of coils used.

Heating coil for the clutch gear, counter gear, mainshaft and first and reverse gear is basically as designed by Budd and originally used in all the heating stations. The coil is made up of an inner liner of formed bricks and water-cooled rails which are replaceable in the outer coil. This is built up of silicon cloth, glass tape, copper tubing and transite pipe.

Special formed refractory bricks are placed inside the coil and are held in place with stainless steel water cooled rails. The rails have a Stellite wear strip built up with weld rod and support the stock in the coil. Rail ends are bolted to the transite end boards. Inside is then coated with air setting fire clay cement and the coil is ready for mounting on heating station.

Basic Economics—Coil provides a minimum air gap between it and the workpiece and has proven quite satisfactory. Its construction makes it relatively expensive to build but experience shows that when a failure occurs in the coil section, it is more economical to replace the entire unit rather than attempt to repair the failure.

Inner liner can be readily replaced when necessary due to breakage of the refractory or wearing out of the stock guide rails. Coil itself when properly built averages about 12 months usage.

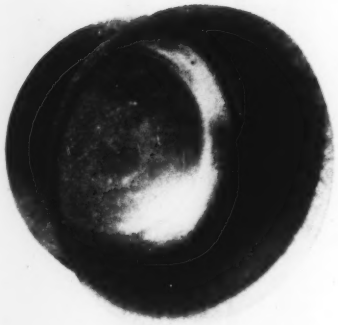
Slight Difference — Idler gear heating coil is similar to the Budd coil except the refractory brick and water-cooled rails are replaced with a silicon carbide liner and mica insulating strips. Since the silicon carbide liner is brittle and will not stand excessive shock, this coil is used only on a station that is manually loaded and no attempt is made to use it on stations that are mechanically loaded.

Four of these coils have been in use for some time and have required little maintenance. Elimination of the water cooled rails saves this heavy maintenance item and increases coil efficiency by retaining the heat that is normally lost through the rails.

Following revamping of the second gear heating station to make it into a continuous billet heater, a coil was supplied for the installation by Tocco. This coil is maintenance free except for replacement of rails and bricks. It has a larger air gap than the Budd coil but is more rigid and can be easily repaired if failure occurs.

Time Tested Rules—Experience shows that good coil life is dependent on proper maintenance of the coils and the provision of an ample supply of clean water. On each shift the heating coils in operation are cleaned of scale; coated with a brush coat of refractory cement on the inside; and are inspected for broken refractory, worn rails and leaks at water connections.

Cooling water for both the generators, heater stations and the coils is supplied by a closed recirculating water system. The water is pumped by a 550 gpm pump at 90 psi and is returned through a cooling tower into the underground storage tank. The circulated water passes through a central screen as well as individual screens at the heater stations to filter out dirt big enough to block passages.



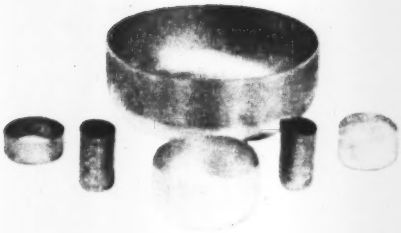
TITANIUM:

MANY PARTS, now fabricated by other methods, can be drawn from commercially pure titanium, often using the same tool steel dies used for other materials. Experiments are planned for drawing heavier gages, square boxes and different alloys now available.

From a fabricator's standpoint, Worcester Pressed Steel Co. welcomes cleaner titanium metal, free from inclusions. We look forward to material with less marked directional properties which produce ears on cups and variable tensile strengths. We look forward to alloys better adapted to working and to welding and we hope for alloys or protective coatings to permit use at higher temperatures over long periods of time.

Special Properties—As annealed commercially pure titanium has a tensile strength of about 70,000 psi (about 105,000 pounds after cold working). It is 44 per cent lighter than alloy steel but 60 per cent heavier than aluminum. It has special properties of value now—keeping its strength in temperature ranges of 400 and 850° F where aluminum loses its strength and resistance to high heats for

Shapes drawn from titanium. Stock thicknesses range from 0.016 to 0.078-inch. Forming was done cold



It Can Be Formed and Drawn

Studies with commercially pure titanium indicate that the metal can be cold formed under proper conditions. Existing titanium alloys are not suitable for deep drawing

By CARTER C. HIGGINS
President, Worcester Pressed Steel Co.
Worcester, Mass.

brief periods of time. Titanium is nonconductive and nonmagnetic in proximity to instruments; it is high in endurance strength; it has unsurpassed corrosion resistance to many acids and to salt water. From these properties spring its present uses.

Commercially pure titanium hardens in drawing somewhat more rapidly than stainless steels and somewhat lower percentages of reduction are desirable in deep drawing before intermediate anneal. Very possibly the alloys will be aided by working warm, but limited experience does not indicate any substantially different behavior at temperatures in the range of 400 to 600° than at room temperature.

Titanium appears difficult to stretch form. Such parts as tank heads with reverse flanges should be done in separate operations rather than combined, to reduce thinning of the metal to a minimum.

More Pressure Needed—Titanium takes more pressure than does stainless steel. We have found a great tendency to wrinkle around the top of drawn cups. Consequently, blank holder pressures have been increased, which means heavier equipment. Titanium will not be hurried; press speeds must be reduced.

Titanium has been experimentally drawn on soft tools such as are employed by the aircraft industry. Because it picks up lead and galls, because of its tendency toward springback, because of the higher pressures required, and because of the likelihood of alloys being drawn hot, hard tools appear to be best for runs of over 200 or 300 pieces.

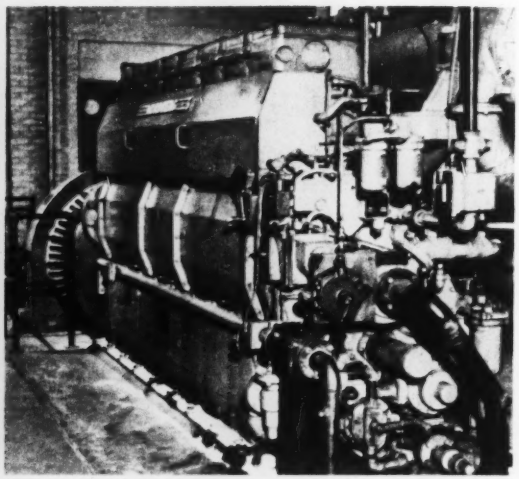
The additional cost of such tools is, of course, a smaller percentage of the value of titanium parts than of steel or aluminum parts. For long runs carbide die inserts would appear to be most satisfactory, but we have had good luck with alloy bronze dies and chromium plated dies.

Lubrication Vital—With a galling material, lubrication becomes particularly vital. No final conclusions can be stated, but the following lubricants appear to offer promise: Bonderizing, dry film, powdered boron carbide, molybdenum disulphide, wax base lubricants, or copper plating the material. Combinations also offer promise.

Commercially pure titanium will fold back on itself around a diameter of a little over its thickness. This does not apply to gages over 0.100-inch where stress-strain relationships within the material are more marked. Heavy material tends to fracture in cupping operations. Titanium appears to be particularly sensitive to notching. Small chips are combustible though not a hazard like magnesium.

Titanium can be annealed in a vacuum without scale formation, but usually a scale is formed which is difficult to remove. It can be removed by scratch brushing and sand blasting. There are also chemical means for descaling such as the Du Pont process and Virgo process which are followed by quenching in water and dipping briefly into a strong nitric-hydrofluoric acid solution to brighten the surface. Intermediate annealing is more frequent than in drawing stainless steel particularly as the material is too valuable to risk chances of spoilage.

Baler and cranes with electro-magnets are part of the equipment drawing power from new generating unit



Operating end of the 530 hp Duafuel, diesel powered, 320 kw generator unit. Generating costs down 50 per cent

Power Output Stabilized

Substituting one generating unit for three, this company has cut outages and saved on operating cost. Constant, economical power supply keeps plant equipment in operation

EXPENSIVE plant outages have been cut and the efficiency of power generation increased at Consumers Steel & Supply Co., Racine, Wis. A Nordburg 530 hp supercharged Duafuel diesel engine has turned the trick.

The engine took over the plant's power demand from three 66 kw diesel units. Studies show that generating costs have been cut almost 50 per cent.

Power Gluttons—Wide range of scrap processing equipment consumes output of the generating plant. Hydraulic press for baling sheet iron; eight alligator shears for cutting up steel plate, structural steel or country iron; torches for reducing steel constructions; turnings crushers; pit with a drop for breaking cast iron; two overhead bridge type cranes with large 65-inch magnets for loading scrap and several crawler-type cranes hungrily demand varying amounts of electrical power.

Multiple-engine installation had to be operated at full load to maintain the 240-v output for proper functioning of plant equipment. Variance in load caused by energizing and de-energizing of the electromagnets resulted in a continually fluctuating demand. Engines, synchronized at the switchboard, experienced difficulty in maintaining necessary voltage. Also their response to changing load conditions was not immediate. This resulted in slowing down of the balers, shears and cranes and occasional loss of heavy material from the magnets.

New Era—Since it went into operation the new single engine unit has consistently maintained the 240-v supply. It has also shown a good sensitivity to changing load conditions.

Engine is rated 530 hp at 600 rpm. Of the four-cycle type, its eight cylinders have 9-inch bore and $11\frac{1}{2}$-inch stroke. It is direct connected to a 240-v, three-phase, 60-cycle, alternating-current, 320 kw General Electric generator.

Although Duafuel-designed, the engine is now operating on straight No. 2 diesel fuel oil pending company negotiations with the local gas company.

Feeds Three—Alternating current from the generator set is fed through a switchboard to three motor generating sets where the current is transformed from ac to dc for use by the yard equipment. Two of these converters are rated 50 kw and are driven by 75 hp motors. The other is rated 30 kw and is powered by a 40 hp motor.

Oil is stored in a 20,000-gallon horizontal tank. Fuel is pumped from storage through two filters and meters to a 300-gallon day tank at floor level in the engine room. Attached fuel oil booster pump draws fuel oil from day tank and puts it through an engine mounted duplex filter and into the engine header and individual fuel injection pumps.

Closed Cooler—Engine has its

"The structural steel came through on schedule"

says

.....The Duraloy Company

THE DURALOY COMPANY

SCOTTDALE, PA.

JULY 23, 1952

THE LEVINSON STEEL COMPANY
SOUTH 20TH AND WHARTON STREETS
PITTSBURGH 3, PENNSYLVANIA

DEAR SIRS:

WE WISH TO THANK YOU FOR THE VERY PROMPT SERVICE EXTENDED US IN CONNECTION WITH OUR RECENT EXPANSION PROJECT. THE STRUCTURAL STEEL CAME THROUGH ON EXACT SCHEDULE, AND OF COURSE THIS EXCELLENT SERVICE IS ALL THE MORE APPRECIATED AS OUR DEFENSE CONTRACTS AND GOVERNMENT COMMITMENTS MADE IT NECESSARY THAT OUR ENLARGEMENT PROGRAM BE KEPT MOVING AT A FAST PACE.

THROUGH YOUR CO-OPERATION AND THAT OF OUR CONTRACTORS, DELBERT L. SMITH & COMPANY, INC., MCKEES ROCKS, PENNSYLVANIA, WE ARE VERY HAPPY TO REPORT THAT OUR NEW AND LARGER FACILITIES ARE NOW OPERATING ON SCHEDULE.

MANY THANKS FOR YOUR PROMPT SERVICE AND EXCELLENT CO-OPERATION.

VERY TRULY YOURS,

F. [illegible] WYNARD,
PRESIDENT

FSW:MBS

Plant of the Duraloy Company, Scottdale, Pa.

THE construction time-table for Duraloy's plant expansion program had to be geared to vital defense commitments. The "on-time" delivery of structural steel was a *must*. That's why Duraloy called on Levinson.

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Fabricators of Steel for Industry

own closed jacket water system. Soft water is circulated by an attached centrifugal pump through a vertical radiator with a temperature regulating valve. Unit automatically stays at temperature.

Air is drawn from the outside through a panel-type filter and supplied to the intake header by an Elliott turbocharger. Exhaust gases after passing through the turbocharger are carried to the outside through a snubber.

Flight Conditions Simulated

New test chamber will test parts for high altitude flight. All conditions accurately simulated

NEW MULTI - COMPARTMENT high altitude chamber with fingertip control is in operation at Pacific Airmotive Corp. Completion of the equipment will increase production in PAC's manufacturing division. President Thomas Wolfe says that new high pressure, high temperature and high flow test equipment will be installed and in operation by Oct. 1.

Altitude chamber's many compartments simulate cabins comparable to those of actual aircraft in flight. These cabins can be raised and lowered in altitude at the same speeds or greater speeds than the most powerful jet aircraft.

Superhuman Brain—Each PAC-manufactured cabin pressure regulator and cabin safety valve will undergo tests in the new altitude chamber under conditions exactly duplicating actual aircraft operation. Amount of air flow through these units can be checked as can the amount of differential pressure necessary to operate the various parts. Calibration and adjustment of the mechanisms making up the superhuman "brain" can be adjusted to within 0.01 psi.

Chamber has released an existing altitude chamber, which has undergone modification for simulating climatic conditions. Hot air is passed through the units to simulate desert climate. Cold air can be simulated in a like manner.

According to Wolfe, the new high pressure, temperature and high test flow equipment will also increase production and add to present research and development facilities.

Welding a hydraulic cylinder for the new Baker bulldozer. Welding is done on the special angled positioner. Work rotates on the rolls

Dozer Design Departs from Standard

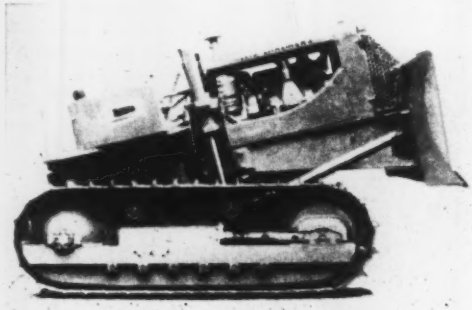
Utilizing an all-welded construction and a radical new design, the dozer saves 1150 pounds of steel per unit and needs no permit for highway transportation

BULLDOZER design saving 1150 pounds of steel per unit is arc welded throughout. It's the new product of Baker Mfg. Co., Springfield, Ill., and is designed for Allis-Chalmers crawler tractors.

Familiar push beams, either inside or outside, are in obvious absence on these models. Yet standard digging ranges and capacities are retained. Dozer was developed in answer to a demand for a big tractor with high working capacity in the 8-foot width limits of non-permit highway transportation.

Main tractor frame takes the place of push beams. Dozer frame is bolted to bolt pads welded to the main frame of the tractor to make it removable but the design calls for fewer removals. Because of a favorable center of gravity, it may be used for drawbar work, with the blade on, without excessive wear on front end truck frame bearings.

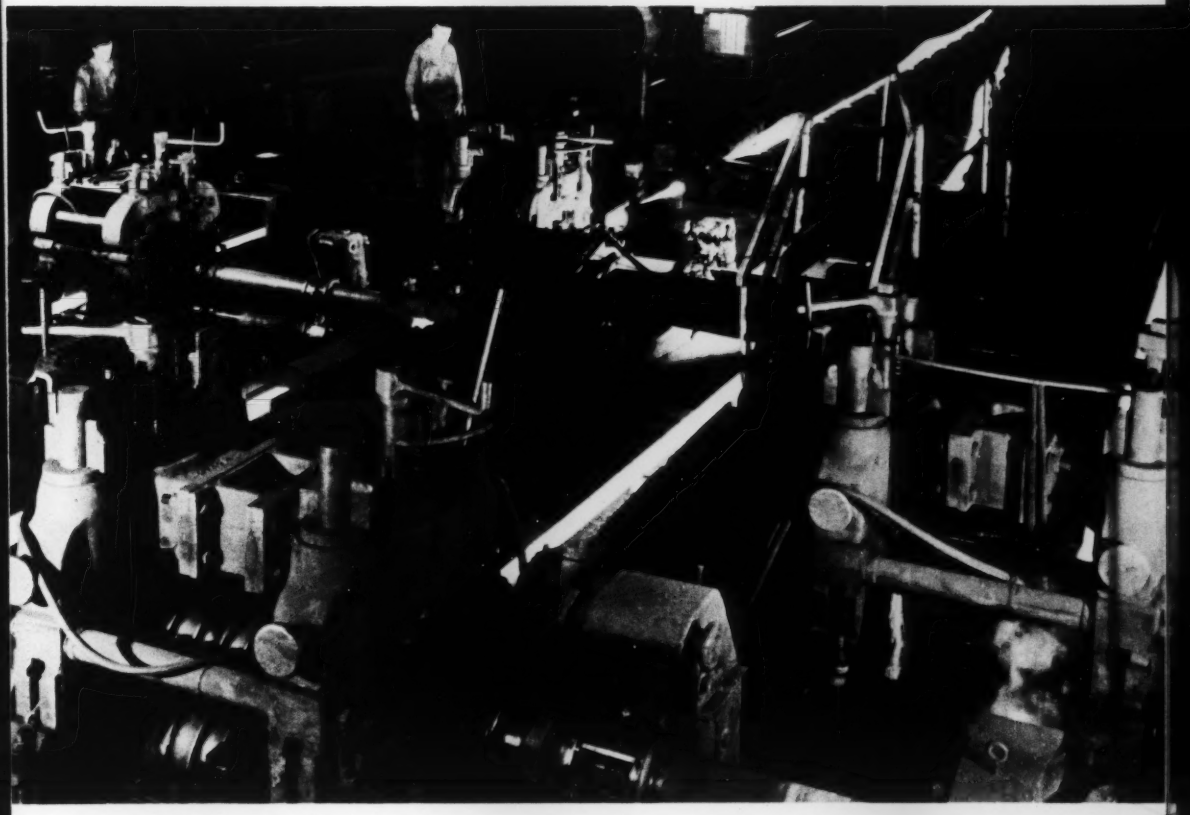
Heart of the new system is a linkage developed by the Baker en-



View of the new Baker dozer installed on an Allis-Chalmers crawler tractor. Whole frame elevates or depresses while tracks stay level

Continental

CROSS COUNTRY MERCHANT MILL



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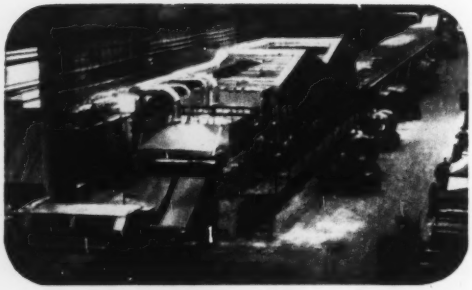
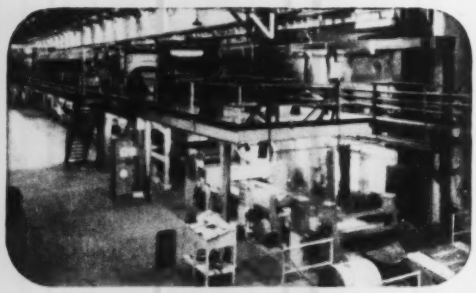
Aluminizing
Bright Annealing and
Normalizing Strip ------ Continuously



Strip in single or multiple strands up to a total width of 54" may be bright annealed or normalized, continuously, in this EF gas fired radiant tube installation. Capacity 7200 lbs. per hour.



A large capacity continuous strip normalizing, annealing and galvanizing unit. This is a combination EF gas fired radiant tube and electrically heated installation and is over 400 feet long.

We are in position to design, build and put in operation: continuous strip lines for hot or cold rolled, high or low carbon, stainless, silicon, tinplate, aluminum, brass, bronze or any other ferrous or non-ferrous strip—for bright annealing, normalizing, galvanizing, aluminizing, tinning or any other process—in the size and type best suited to your plant, process, product or production requirements. No job is too large or too unusual.

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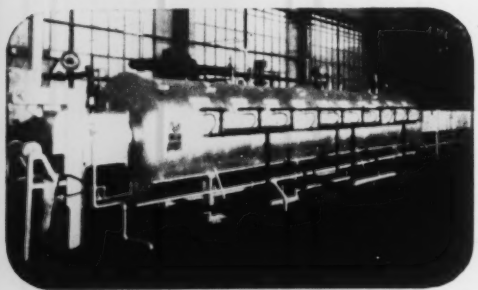
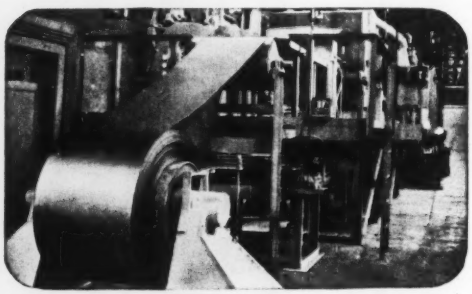


Stainless steel strip is bright or process annealed, continuously, in this EF gas fired special atmosphere tube muffle type furnace. It also handles other strip requiring lower temperatures.



An EF special atmosphere furnace with flame preheating burn-off or oxidizing section, and controlled heating and cooling zones for producing various surface conditions on strip.

gineers which tips engine and frame as dozer blade is raised and lowered. The tracks remain horizontal.

Cylinder Support—Double-acting cylinders are mounted on each side in a vertical position instead of at an angle. Each cylinder exerts 24,000 pounds pressure, more than needed for the job of supporting engine and providing flexible blade response under all operating conditions. Front end of frame and engine are supported by these cylinders at all times. The plant has a separate welding department for hydraulic cylinder production.

Piston rod of each hydraulic cylinder is connected to an inside-mounted stabilizer bar through a spherical bearing and the stabilizer bar in turn connects to a vertical link through another spherical bearing.

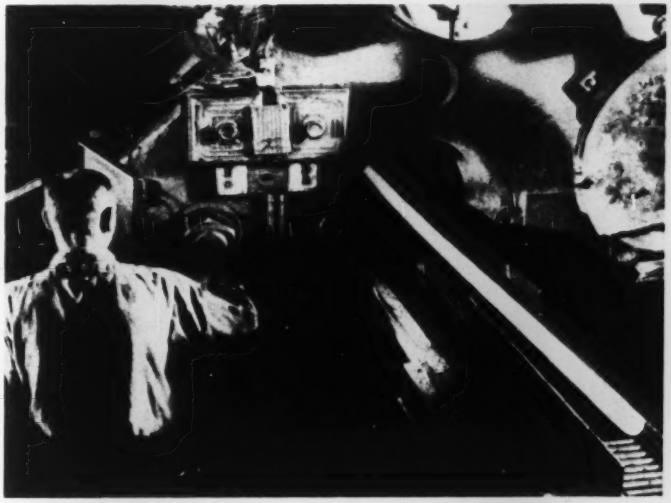
The stabilizer bars take up any torsional strain that might tend to spread tracks by transferring the force into the mold board through horizontal bearings. Stabilizer bars do no lifting or pushing.

Missing Parts—When the dozer is mounted, spring, spring saddle, bumper and bracket which support engine and frame on the standard tractor, are removed. This saves 835 pounds of steel and the point at which spring pads were located was found to be ideal for carrying weight into the frame. Since no spring is needed, spring pads are removed and replaced with brackets to which the new lifting mechanism is attached.

Track alignment is maintained in the same manner as on the tractor without the dozer equipment. The standard A-frame designed by the tractor manufacturer remains the same.

Swinging Doors—High pressure rotary type hydraulic pump is located in the space between the fixed top of the dozer blade and the top of the radiator and is protected by a perforated heavy steel grill, hinged on each side and split in the middle. These doors swing open over the top of the mold board and provide generous accessibility to pump and manifold.

From a manufacturing standpoint, the 9-X not only provides new features for the user and saves steel for everybody but it also establishes a new concept in machine production since it requires no new factory equipment. Like all Baker equipment, the unit is entirely welded, and less welding and forming is required with the 9-X. This releases some of their Lincoln welding equipment for higher production use on heavy push beams and framing of the heavier models.



Copper Extrusion Entails Five Million Pounds

Extrusion of brass and copper rods and tubes begins with a billet heated to temperatures from 1350 to 2100 F, depending on alloy. Here, a machine at Chase Brass & Copper Co., Waterbury, Conn., extrudes a 20-foot length of copper. Diameters are 2⅞ to 5¾ inches; force exerted reaches 5 million pounds

Gun Tubes Turned Faster

Cemented tungsten carbide clamped tools cut former production time per barrel in half

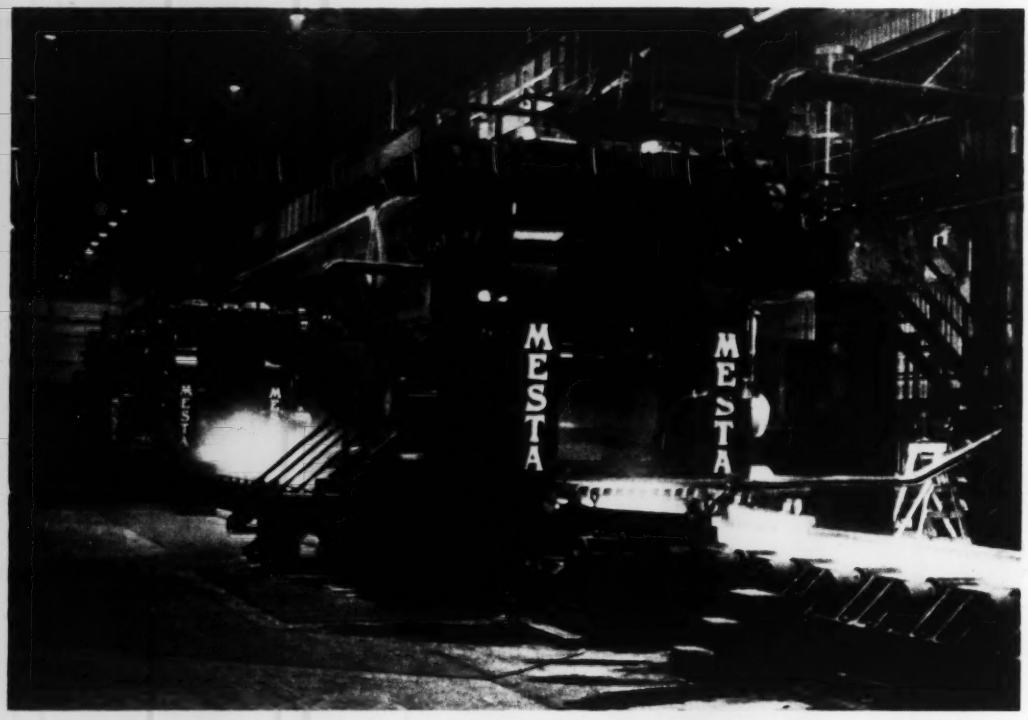
DOUBLED production of 105 millimeter gun tubes at a midwestern ordnance plant was recently achieved by replacing conventional brazed carbide tools with standard, cemented tungsten carbide clamped tools produced by Kennametal Inc., Latrobe Pa. By minimizing tool changing down time and eliminating one roughing cut, production time per tube was slashed from 3.6 hours to 1.8 hours—a 50 per cent reduction.

Poor Economy — Original tools used on this job consisted of a variety of carbide grades and shank sizes which were on hand when the gun contract was obtained. To turn these tough chrome-nickel forgings (Brinell 350-385) at 75 rpm, 185 sfm and a 0.023-inch feed required two roughing cuts, a semi-finishing cut and a finishing cut — a total of four operations on a LeBlond tracer lathe.

Depth of cut on the first pass varied from ¼ to 5/8-inch. This variation in depth plus relatively long cuts resulted in much tool breakage and tool changing downtime.

Production Payoff—Rough turning is now done at the plant with a clamped carbide tool using the same speed but a slightly higher feed of 0.027-inch. Since clamped tools are free from any brazing strains, down time due to tool breakage has been practically eliminated. Furthermore, it is now possible to completely turn the gun tubes with only three cuts.

Finish turning is also done with Kennametal clamped carbide tools at 90 revolutions per minute, 130 to 210 surface feet per minute with 1/16-inch depth of cut. Production with the brazed tools was two and one-half pieces in nine hours. Now with clamped carbide tools five pieces are easily turned in nine hours.



Modern continuous 4-high mill for hot rolling wide strip

Wide Strip Mill Opens World of New Ideas

Impact of 4-high continuous hot and cold mills on conventional hand-operated sheet mills was a rapid displacement of obsolescent equipment at large capital cost, and improved working conditions for labor

By FRANK H. FANNING
Vice President, Operations
Armco Steel Corp.
Middletown, O.

IMPACT of wide hot strip mills, and wide cold strip mills, on old hand mill operations was mainly a rapid displacement of obsolescent equipment, the substitution of new modern plants at tremendous capital cost, and a radical improvement in working conditions for labor. In 1926 there were 1264 hand mills for producing hot rolled sheets. By 1940 there were 750 hand mills. At present only a few such mills exist, some used on special products and a few others operating in one or two small plants that are not yet modernized.

The discovery which made wide strip hot rolling practicable and which permitted much greater width to thickness ratios than previously thought possible was that the piece should have a slightly convex cross section and that each successive pass should have progressively less convexity, and that at least five factors controlling such a process were essential, namely:

1. Prepared contour of rolls.
2. Temperature of rolls.
3. Composition and springiness of rolls.
4. Screw pressure applied to roll necks.
5. Shape, composition and temperature of the piece.

Proper Conditions Provided — The most important result of the proper control of these five factors was to provide equilibrium conditions by which this convexity formed a guide by surface contact for the sheet or strip, thus preventing its lateral movement, which would destroy the regularity of shape, or result in the sheets

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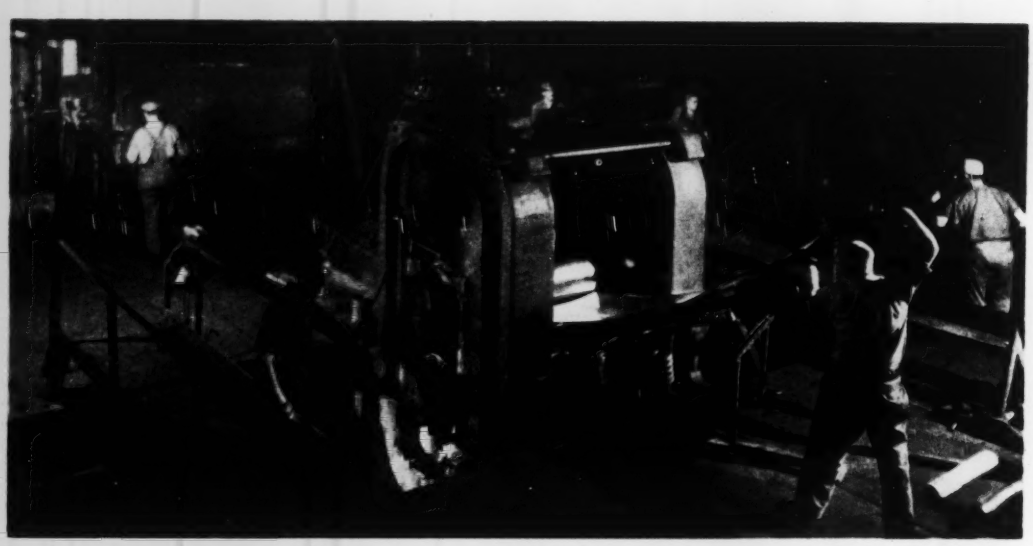

Typical conventional type hot mill for hand rolling sheets

or strip running into the necks.

With the disclosure of the correct principles of operating continuous wide strip mills, the 4-high mill, having relatively small diameter work rolls, proved to be the most efficient mechanical means of producing the desired result. The application of roller bearings, and later the oil bearing, made the 4-high mill the most effective rolling machine known for producing wide, thin strips, where higher separating forces are encountered than in any other rolled product. The 4-high mill is a mill of free dimension where there is no restriction on the designer to properly proportion the roll diameters to carry the rolling loads.

That the new method of flat rolling made possible the rapid development of new products and new techniques in the fabrication of steel is easily demonstrated. This accounted for the employment of many workers in the production and fabrication of large tonnages of sheet steel for uses wholly nonexistent before the appearance of the continuous mill.

Production of more and better automobiles, washing machines, electric and gas ranges, and kitchen equipment was given impetus by the development of new properties and qualities in sheets made possible by the new process. It is a product which lends itself to uses and applications utterly beyond the scope of the old style sheets. For example, the one-piece fender, and the all-steel auto top, each of which is stamped from a single wide steel sheet.

Excels in Tonnage—Flat rolled products in 1923 amounted to 31 per cent of the total steel output of the country and totalled 11,606,814 tons, whereas in 1950 the total of flat rolled products had increased to 39,758,326 tons, and amounted to 53 per cent of all steel products produced.

A careful computation based on present-day labor and material costs, applied to old hand mill yields and processing operations, shows that 20-gage cold rolled would be selling today at $275 a net ton instead of $104 a net ton for the new and much superior product.

Improved yields made possible by the new process really had a greater effect on economies passed on to the public than did increased production per man hour. Normal yields from ingots to finished 20-gage cold rolled sheet by the hand mill process could be expected to be around 48 to 49 per cent.

It is possible with modern strip rolling equipment to end up with an average 72 per cent of the ingot in prime 20-gage automobile sheets.

Present-day production of all flat rolled products at the old hand mill yields would require about 27,000,000 tons more ingot capacity than we have in the country at the present time, or a total of over 140,000,000 tons.

Pace Is Maintained — Improvement in mechanical properties of flat rolled products kept pace with improved rolling practices.

Three major factors contributed to the improvement of the product: (a) Chemistry, (b) rolling procedures and equipment, and (c) heat treating facilities. Of these three, it is my own opinion, the rolling procedures and equipment item was most important, because it made possible the improvement in the other two by the changed nature of the product.

Through all the years of wide strip development, the customer no sooner got a taste of an improvement in product than he demanded more.

The midtwenties saw the development of normalizing furnaces, which replaced the first box annealing operation after hand roll-

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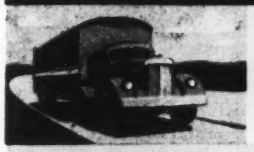
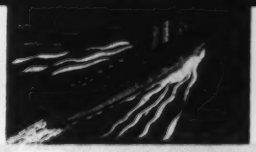
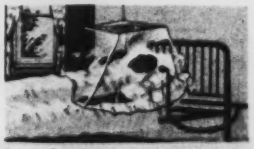


FIRST *Air Products* **was the first to make an oxygen generator that could be transported by truck.**

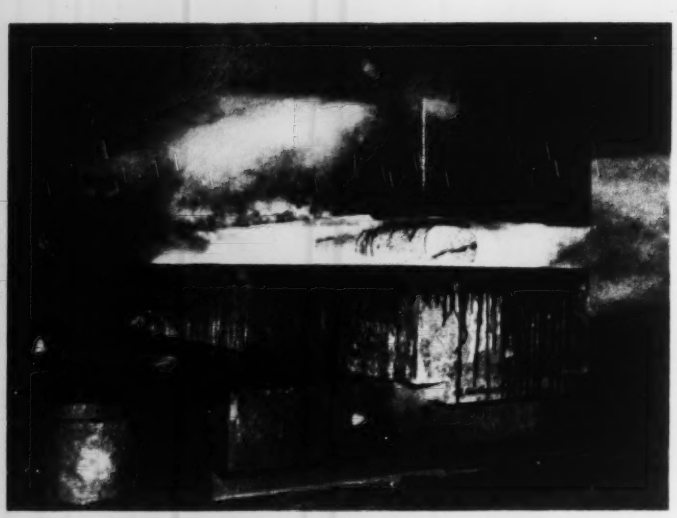


FIRST *Air Products* **was the first to make an oxygen generator that could be operated aboard ship.**

FIRST *Air Products* **invented the liquid pump for the delivery of high pressure oxygen and/or nitrogen.**



FIRST An *Air Products* **Generator was the first to be installed in a hospital for medical oxygen production.**



Metal Moves Under 15,000-Ton Pinch

Here's the start of the squeeze as the 15,000-ton Schloemann press bears down on the aluminum-magnesium stock. Press is now turning out airframes at the Cleveland Works of Aluminum Co. of America. It was made and used in Germany for their wartime aircraft production program and weighs over 1600 tons

ing. This helped to reduce the variation in grain size which meant a more uniform product.

The steel is relatively fine grained, somewhat harder but having more stretchability with less coarsening of the surface when deformed.

The advent of continuous hot strip rolling brought further improvement, and metallurgists began to focus more attention on chemistry so as to take advantage of the control possibilities made possible by the new process.

Effects Greater Reduction — It was found from experience that small rolls were capable of producing greater reductions per pass because the area of contact of the metal with the roll is less and, therefore, the resistance offered by the piece is less for the same amount of reduction. However, the resistance of a cylinder to bending varies with the cube of the diameter; therefore, the smaller the diameter, the greater the tendency to bend.

In the more recent design of four-high hot mills there has been a trend to increase further the diameter of the work rolls in order to provide sufficient torque capacity in the work roll necks for increased power input. To increase work roll diameters increases the separating forces which in turn means higher bearing loads and increased spring in the mill. Work roll neck diameters seriously limit the power input into the mill, increasing the number of mills required in a mill train to make a given range of reduction in strip gage.

Another line of development possible is through the application of electronics to control of screw setting.

On 4-high continuous strip mills where the rolling is in one direction, the strip gage is not uniform from end-to-end of the strip. This undesirable condition is much less on the reversing hot strip mills where the colder trailing end enters the mill first on the next pass.

It is desirable automatically to control both the mill screw and the strip tension between stands to insure uniform gage throughout the length of the strip.

Little work has been done to develop such a control, but with the introduction of the x-ray gage as a source of intelligence it should be possible for a bright young electronics engineer to contribute a major improvement to the new "science" of flat rolling.

From a paper presented before the general meeting of the American Iron and Steel Institute, New York, May 21-22.

Grinding Report Published

Suggestions on proper grinding of standard tools are advanced in a leaflet, "Sharpening Metalcutting Tools Used in Machine Shops," released by Small Defense Plants Administration, Washington. The report is part of a series of management-technical aids to small business under preparation by SDPA. Companion release for management men is titled, "Business Insurance—Part I."

Separate sections of the grinding paper discuss sharpening planer and shaper tools for machining cast iron, steel and nonferrous metals; sharpening tools for boring mills; sharpening taps, dies and chasers, and reamers; and use of cast alloy and carbide tips.

The management report was prepared by the Research Department, Association of Casualty & Surety Companies, in co-operation with SDPA's Management-Service Division. It considers the various types of fidelity, forgery and surety bonds and burglary insurance.

Tool Works Tank Housings

Six tank suspension support housings made of cast armor material having Rockwell hardness of C42 are finished every hour on a new special machine delivered by Cross Co., Detroit. Operations include rough and semifinish boring a multidiameter hole and forming two snap ring grooves. After one bore is completed, the fixture is indexed and the operation repeated for a second bore.

Machine has a fluid motor-operated index table with five stations. One station is employed for loading, three for boring and one for grooving. A 40-hp motor is provided for each boring spindle. Other features reported by the manufacturer include hardened and ground ways, hydraulic feed and rapid traverse, and automatic gravity operated cam clamping for the index table.

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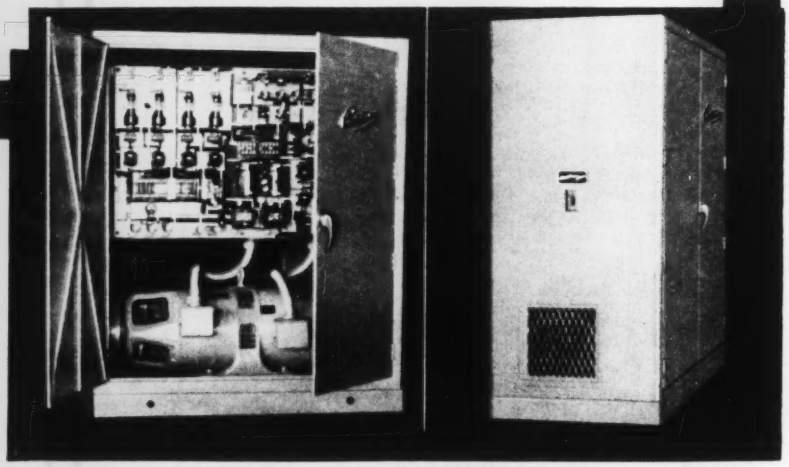
POWER UNIT — Inside front view showing control and motor generator set.

Side view of power unit showing air cleaner for forced air ventilation.



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- You can accurately control assembly line conveyors over a wide range of speeds, and precisely coordinate the speed and timing of feed conveyors.
- You can: (1) inch the load . . . (2) accelerate the load fast or slow . . . (3) stop the load quick or slow . . . (4) stop and start at a controlled pre-set speed . . . (5) reverse the load under specific conditions . . . and (7) you can use a multiple of co-ordinated drives for related functions.
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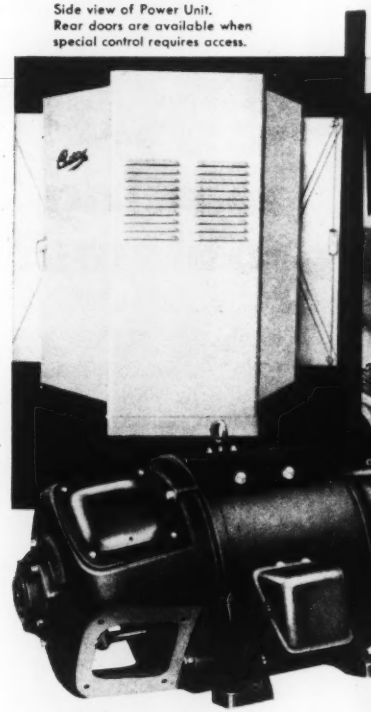
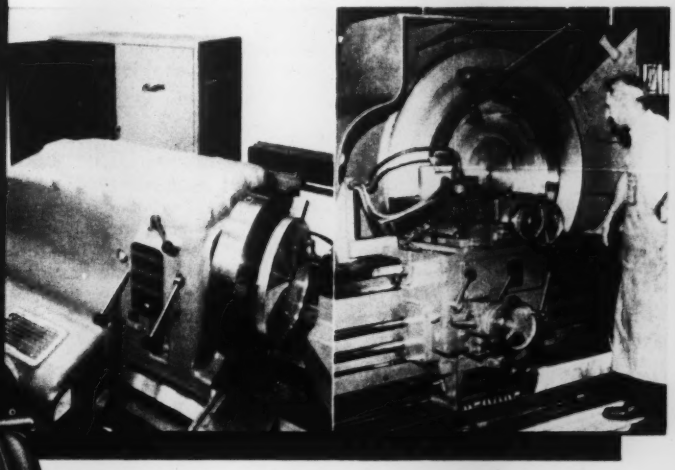
A Century motor specialist will be glad to discuss with you the specific benefits you can get from Century Selective Speed Drives. They may be adapted to your present — or new — production equipment.

Side view of Power Unit. Rear doors are available when special control requires access.



Two different makes of equipment make parts for defense production.



The OPTIMUM cutting speeds are automatically controlled to provide a uniform cutting speed for all the varying diameters of the facing operation.

Write . . . ask that a Century application engineer consult with you.

Typical drive motor which operates from the alternating current power unit.

COMPANY

Century C MOTORS

Offices and Stock Points in Principal Cities

CE-756

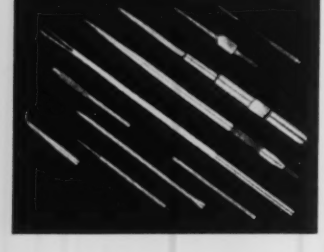
"Joe, where can we get these small parts in the quantity we need?"

"From Torrington, Tom! They turn out hundreds of thousands of precision metal parts a day."

Batteries of automatic and semi-automatic machines are working steadily and efficiently at Torrington, keeping many of the nation's leading manufacturers supplied with small precision metal parts made to their specifications. Whether you need a tremendous quantity of parts on a regular basis, or only an occasional few, we can furnish them at a surprisingly low cost.

Just send us a sample or blueprint of your small metal components. Tell us how many you need. We'll give you a prompt quotation.

Typical Torrington-Made Parts



THE TORRINGTON COMPANY
Specialty Department
556 Field Street • Torrington, Conn.
Makers of
TORRINGTON *NEEDLE* **BEARINGS**

Broach Cuts Blind Slots

Using a short stroke, broach cuts one side of ring and returns without touching other side

BROACHING setup developed by Colonial Broach Co., Detroit, permits the use of standard broaching machines for finishing surfaces where the broach cannot pass by the work.

The machine is basically a 6-ton, 42-inch stroke single ram vertical broach. It produces 12 slots of identical shape on right and left hand 20-inch diameter stationary brake-applying cams for army tanks.

Blind Operation—The slots are not diametrically opposite each other and thus are in effect blind, and do not permit passing a broach completely by the part. Actually the broach only travels 17 inches to produce each slot and returns to the top of the stroke in position to finish another slot. It does not touch the opposite side of the ring.

In operation, the ring-shaped cam is loaded on an index fixture mounted on the receding table of the machine. The fixture is then trunnioned to a vertical position by a hydraulic cylinder. The table shuttles into position and one of the slots in the part is broached. The table then recedes and the part is indexed on the hydraulically controlled fixture, and the table shuttles into position for cutting another slot.

Indexing and shuttle action are automatically controlled. Total time to produce the 12 slots is quite short in view of the short stroke and use of automatic cycling.

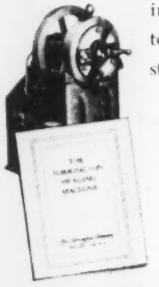
Mining Show Draws Ore Movers

Importance of belt conveyors for high or low capacity, long or short haulage of ores will be emphasized by Link-Belt Co.'s exhibit at the 1952 Metals & Nonmetallic Mineral Mining Exhibit in Denver, Colo.

To demonstrate this phase of mining operations, the firm reports it will install an arrangement of belt conveyor troughing idlers. These will include standard, rubber

pointing problems?

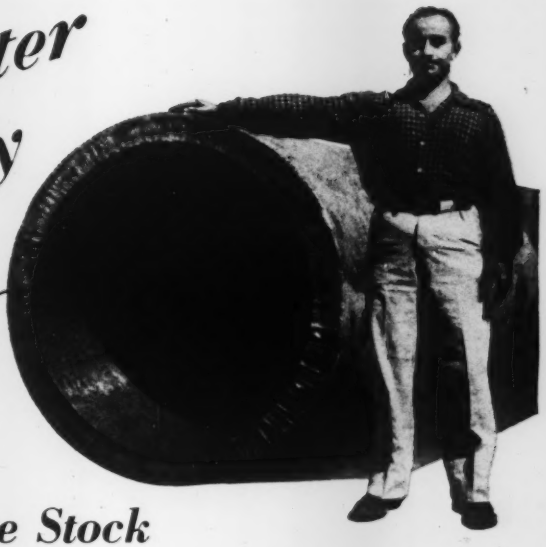
Torrington Swaging Machines produce pointed ends on both solid and tubular work to close tolerances. The swager, delivering 4000 hammer blows a minute, works rapidly and gives the metal toughness and resiliency. Swaging is economical, too, for there is no stock waste.



"The Torrington Swaging Machine" tells the story on the art of swaging, and describes the complete line of Torrington machines. This informative booklet is yours for the asking.

THE TORRINGTON COMPANY
Swager Department
556 Field Street • Torrington, Conn.
Makers of
TORRINGTON *NEEDLE* **BEARINGS**

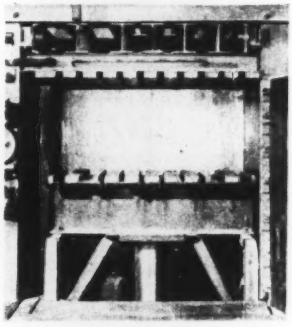
Now! Large diameter centrifugally cast tubing



Available from FRASSE Warehouse Stock

ACIPCO steel tubing, centrifugally cast, is now available from Frasse in sizes ranging from 2″ to 50″ O. D., wall thicknesses of ¼″ to 4″, in lengths up to 16 feet. The more popular sizes are immediately available from stock. Other sizes and analyses (in quantities as little as 16 feet) can be made to order promptly.

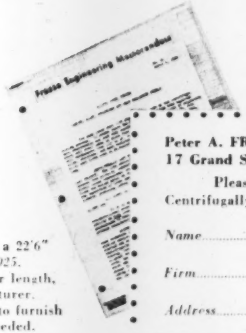
Government, ASTM, AMS, ABS, ACI and AISI specifications can be readily met. ACIPCO tubing is made in any standard or non-standard analysis. Steel used in its manufacture is produced in electric furnaces.



Fabrication of this hydraulic baling press required a 22'6" ram of AISI *1030*, and a 21'6" cylinder of AISI *1025*. ACIPCO tubing, circumferentially welded to proper length, was used successfully for both items. The manufacturer, Consolidated Baling Machine Co., relied on Frasse to furnish ACIPCO tubing in the size, length and analysis needed.

Typical applications for ACIPCO tubing include: Hydraulic cylinders, ship propulsion shafts, cracking still tubes, retorts, and paper mill rolls. In addition, it has received wide recognition as a component in weldment applications. Why not investigate the many advantages offered by this versatile product?

Frasse Engineering Memorandum #11 covers in detail the characteristics, properties, analyses and pertinent facts about ACIPCO centrifugally cast steel tubing. Mail the coupon below for your free copy today.



COMPLETE FACTS ABOUT ACIPCO CENTRIFUGALLY CAST TUBING

MAIL TODAY!

Peter A. FRASSE and Co., Inc. 64-J
17 Grand St., New York 13, N. Y.

Please send me, without obligation, complete facts about ACIPCO Centrifugally Cast Steel Tubing.

Name ..... *Title* .....

Firm .....

Address .....

Call FRASSE 1st for **SEAMLESS, WELDED AND CENTRIFUGALLY CAST STEEL TUBING**

Peter A. FRASSE and Co., Inc.

New York 13, N. Y.	Philadelphia 29, Pa.	Buffalo 3, N. Y.	Syracuse 1, N. Y.
17 Grand St.	3911 Wissahickon Ave.	50 Exchange St.	P. O. Box 1267
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METAL MARKETPLACE OF THE WORLD

. . . OVERSHADOWING ALL OTHERS

METALS MARKET PLACE OF THE WORLD

. . . the greatest

SHOW

of its kind

under the sun . . .

the big '52 metal show

OCTOBER 20-24 • PHILADELPHIA, PA.

STEEL

tread impact and belt training, plus steel roll and rubber tread return. Also featured in the company's display will be a double-deck, 5 x 14-foot operating CA concentric action vibrating screen of the floor mounted type.

The annual conference and show, sponsored by American Mining Congress, is scheduled for Sept. 22-25, in Denver.

Central Drinking Water Supply

Electric water cooler that supplies fresh cold water to as many as three different drinking fountains has been developed by the Westinghouse Electric Corp.'s Appliance Division, E. Springfield, Mass.

H. F. Hildreth, manager of the refrigeration specialties department reports that new unit was designed for remote installation, with the cooler being used as the central source of cooled water supply.

"This new type of cooler," Mr. Hildreth says, "can dispense cold water continually to as many as three conveniently arranged wall fountains on the same level, above, or below the main cooler."

The cooler can be used in offices, plants, stores and any location where there is a need to save

Ventilated Points

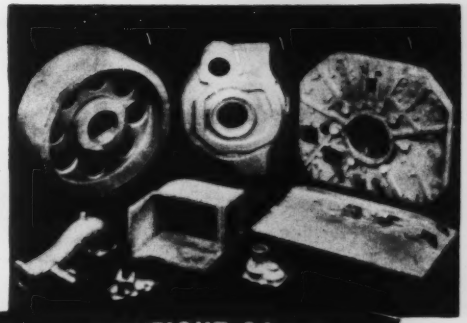
AUTOMOBILE owners who have taken for granted the fallibility of ignition distributor points can now relax a bit.

Long standing tendency to arc and pit with metal transfer has made the points a real thorn to ignition engineers. It has been known for some time that if one of the points is ventilated, transfer of metal from one point to another is greatly reduced. Putting a hole in a tungsten disk, however, presents some metallurgical problems.

Developed jointly by Holley Carburetor Co., Detroit, and Fansteel Metallurgical Corp., North Chicago, new ventilated contact disk represents solution of these problems.

Ventilated tungsten contacts have increased the life about three times and are giving better engine performance.

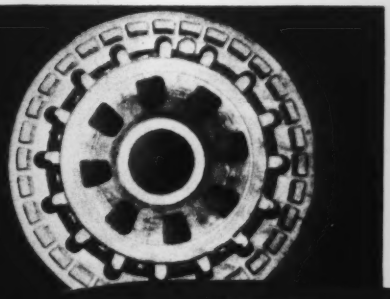
*Well-Cast



COMMERCIAL LIGHTWEIGHT CASTINGS

Your commercial requirements for lightweight castings in aluminum or magnesium may be tough, but we'd welcome an opportunity to look them over. We've tackled a good many diversified casting problems over almost a half century.

Our four completely equipped plants and their trained personnel are at your disposal.



*Well-Cast

MILITARY LIGHTWEIGHT CASTINGS

Aircraft wheels, strut parts, engine parts and miscellaneous components are being made every day at our plants, in aluminum and magnesium. X-Ray inspection, close attention to detail, complete facilities for production in sand, semi-permanent and permanent mold form.

Well-Made Wood and Metal Patterns.
Well-Cast Ampco Bronze Castings.

*Copyrighted Trade Name

If you would like to receive the Wellman Magazine each month without charge, drop us a note on your business letterhead.

THE WELLMAN BRONZE & ALUMINUM CO.

DEPT. 19 12800 SHAKER BLVD., CLEVELAND 20, OHIO

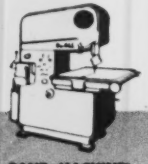
FRICTION

WORLD'S FASTEST, LOWEST COST METHOD

DONE BETTER WITH DoALL BAND MACHINES —BUILT FOR THE JOB!

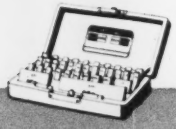
DoALL ZEPHYR HIGH SPEED BAND MACHINES — the ideal machines for friction cut-off sawing and friction contour sawing everything from gray iron castings to stainless sheet. Speed range up to 15,000 blade feet per minute. Single or variable speed models available with throat capacities from 16″ to 60″.

DoALL CONTOUR-MATIC BAND MACHINE used for friction sawing stainless steel, Hastelloy "B" and other ferrous alloys at a large research laboratory. This machine has a speed range of 40 to 10,000 blade feet per minute. It can be used not only for friction sawing but also for sawing, slicing, grinding, honing, polishing and filing any known material. It will contour-machine any shape.

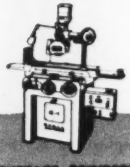


BAND MACHINES

SAW BANDS



GAGING EQUIPMENT



SURFACE GRINDERS

SAWING

OF CUTTING FERROUS METALS

DONE BETTER WITH DoALL FRICTION SAW BANDS... DESIGNED *EXCLUSIVELY* FOR THE JOB!

Actual size
½" wide, 10 pitch friction saw band

DoALL friction saw bands are manufactured in ½" and ¾" widths .032 gage and 1" .035 gage, 10 and 14 pitch. They are sold in 500 ft. coils in exclusive "strip-out" containers or in cut and welded lengths for use on all high speed band sawing machines at speeds from 3000 to 15,000 blade feet per minute.

FRICTION SAWING is a process wherein the friction created by the 3000 to 15,000 feet per minute band speeds softens the metal being cut, by heating it to its forging temperature directly ahead of the band teeth. The teeth bite easily into this softened metal, hogging it out much faster than if the metal were cold.

Friction Sawing provides amazingly fast cutting of ferrous metals, including hard-to-machine alloys. Sheet steel 1/16" thick can be cut at 140 linear feet per minute. One-inch material can be cut at speeds up to six lineal inches per minute.

The speed and economy of friction sawing is greatly dependent upon the saw band used. The tooth design, pitch, set, band width, thickness, steel alloy and heat treating of DoALL Friction Saw Bands are all specially designed for the job. A unique hardening technique is used to give longer set life and increase tooth strength. The metallurgical characteristics of the band are peaked for maximum flex life.

Here are the benefits of DoALL Friction Saw Band design, as compared to any standard or substitute metal cutting band:

1. Faster cutting rate.
2. Less operator fatigue.
3. Less burr.
4. Less heat penetration (excessive heat destroys desirable alloy characteristics).
5. Longer blade life on straight and radius cutting.
6. Less downtime for blade replacement.
7. Lower labor costs.
8. Lower production costs.

Tests have proved conclusively that when all factors, particularly labor costs, are taken into consideration, the cost of friction sawing with DoALL Friction Saw Bands is as much as 15 times lower than with bands not designed for the purpose.

For the fastest, lowest cost cutting of ferrous metals, use friction band sawing with *DoALL machines and saw bands.*

Call DoALL today—ask for free literature and a demonstration of friction sawing at your own plant.

SB-17

THE DoALL COMPANY
254 N. Laurel Avenue, Des Plaines, Illinois

In Canada: The DoALL Company of Canada, Ltd.
37 Clarkson Avenue, Toronto 10, Ontario, Canada

DoALL

FOR COMPLETE INFORMATION refer to the DoALL Band Tool Manual—a 140-page guidebook to better band machining of all materials. Price $2.00 at your local DoALL Store.

38 Local Sales-Service Stores

AMERICAN CHEMICAL PAINT COMPANY

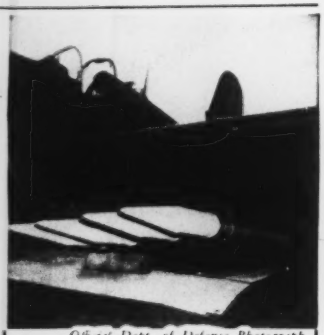
AMBLER CHEMICALS ACP PROCESSES PENNA.

Technical Service Data Sheet

Subject: IMPROVING PAINT ADHESION ON STEEL WITH GRANODINE®

INTRODUCTION

"Granodine" is a zinc phosphate coating chemical which improves paint adhesion on steel, iron and zinc surfaces. In the Granodizing process, a non-metallic crystalline coating is formed on the treated metal. This bond holds and protects the paint finish and thus preserves the metal underneath.



Official Dept. of Defense Photograph

An F4U Corsair with the Navy's new aircraft anti-tank rocket, the "RAM". A Grade I zinc phosphate finish (JAN-C-490) protects the entire external surface of this rocket and provides a durable bond for the specification paint finish.

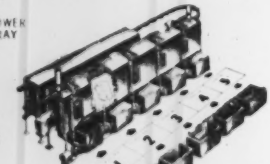
"GRANODINE" MEETS SERVICE SPECIFICATIONS

JAN-C-490, Grade I	CLEANING AND PREPARATION OF FERROUS METAL SURFACES FOR ORGANIC PROTECTIVE COATINGS
JAN-F-495	FINISHES FOR EQUIPMENT HARDWARE
U.S.A. 57-0-2C Type II, Class C	FINISHES, PROTECTIVE, FOR IRON AND STEEL PARTS
U.S.A. 51-70-1, Finish 22.02, Class C	PAINTING AND FINISHING OF FIRE CONTROL INSTRUMENTS; GENERAL SPECIFICATION FOR
MIL-V-3329	VEHICLES, COMBAT, SELF-PROPELLED AND TOWED; GENERAL REQUIREMENTS FOR

GRANODIZING DATA

Granodizing is an easily applied chemical process. Depending on the size, nature and volume of production, Granodizing can be carried out by spraying the parts in successive stages of a power washing machine, by dipping the work in the cleaning, rinsing and coating baths contained in tanks, or by brushing or flow coating the work with portable hand equipment. Typical process sequence and equipment requirements are shown below:

MULTI STAGE POWER WASHER FOR SPRAY GRANODIZING



IMMERSION TANKS FOR DIP GRANODIZING

PROCESS SEQUENCE

1. Clean
2. Rinse
3. "Granodine"
4. Rinse
5. Final Rinse

NOTE: Equipment can be of mild steel throughout except in the Granodizing stage where nozzles, risers, and pump impeller should be of acid-resistant material.

MANY APPLICATIONS

Automobile bodies and sheet metal parts, refrigerators, washing machines, cabinets, etc.; projectiles, rockets, bombs, tanks, trucks, jeeps, containers for small arms, cartridge tanks, 5-gallon gasoline containers, vehicular sheet metal, steel drums and, in general, products constructed of cold-rolled steel in large and continuous production are typical of the many products whose paint finish is protected by "Granodine".

CHEMICALS ACP PROCESSES

WRITE FOR FURTHER INFORMATION ON "GRANODINE" AND YOUR OWN METAL PROTECTION PROBLEMS.

CHEMICALS ACP PROCESSES

valuable floor space. It is a completely packaged cooling unit with a hermetically sealed refrigeration system.

Roller Rebuilder Introduced

Mir-o-col Alloy Co. Inc., Los Angeles, reports a new combined 45-90 wire for rebuilding tractor and shovel rollers, idlers and rails. The firm's method combines impact resistance of its No. 45 wire with abrasion resistance of its No. 90 product to gain wear resistance.

Characteristic of the No. 45 is high nickel content to withstand heavy impact. The wire can be used in multiple-pass operations with no spalling. Deposit hardness ranges from 22 to 28 Rockwell C. The No. 90 contains chromium, molybdenum and vanadium, and has Rockwell C scale hardness of 46 to 48. Both wires are adaptable to submerged welding.

Rod Cuts Preweld Preparation

Special flux coating used on a new bronze welding rod is reported to permit the alloy to bond "automatically"—even on dirty cast iron. This should minimize possibility of weld failure, a great help in delicate repair jobs.

Rod and special coating, Eutec-Rod 148FC, are described in a leaflet published by the manufacturer, Eutectic Welding Alloys Corp., New York.

Drill Cuts Labor 82 Per Cent

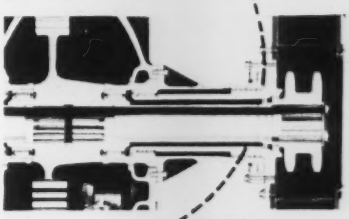
Guided missile production at Douglas Aircraft Co., Santa Monica, Calif., is speeded up with a new drilling machine. The Douglas designed machine, now in operation at the company's Santa Monica plant, eliminates 82 per cent of the labor previously required to drill 19 holes in the leading edge and seven holes into the trailing edge of a missile fin. By attaching 19 Keller Airfeedrills to a jig structure, the complete drilling operation is accomplished in 36 seconds. Until recently, the manually performed drilling operation took 4.2 minutes.

Standard drill motors incorporating feed mechanisms were used to reduce tool design and fabricating time and to minimize down

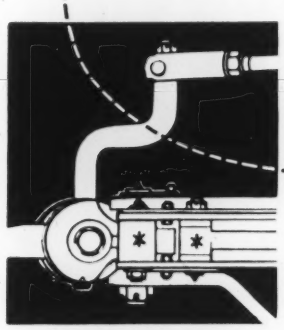
Tough service calls for

TOUGHER STEEL . . .

the right REPUBLIC STEEL



The drive axle of the Adams Motor Grader shown above is Republic Alloy Steel.



Print showing double reverse bend formed in Adams Grader steering arm made of Republic Alloy Steel.

Ever watched a motor grader cut a roadside ditch? Or cut down a bank? There is plenty of shock and stress on the axles and steering arms of this Adams Motor Grader . . . and usually from heavy-handed, heavy-footed operators.

The *right* Republic Alloy Steel Bars were decided on jointly by the metallurgist at J. D. Adams Mfg. Company working with Republic's exclusive 3-Dimension Metallurgical Service. The results include fewer rejected parts within the plant, longer life with fewer field failures, and fewer customer complaints.

The Adams metallurgist talked over his requirements with a Republic Field Metallurgist. Then the Republic field man discussed the problem with two members of the Republic team . . . a Republic Mill Metallurgist and a Republic Laboratory Metallurgist. The alloy selection and the heat-treat procedures they decided on were put into production by Adams.

Perhaps you and your metallurgists face problems of selecting the right alloy to do a certain job best. Or problems of how to shift smoothly to alternate alloy grades. We'll be glad to arrange for a Republic Field Metallurgist to put Republic's *exclusive* 3-Dimension Metallurgical Service to work for you.

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N.Y.

LAB FIELD MILL
3-DIMENSION Metallurgical Service

REPUBLIC STEEL

Republic ALLOY STEELS

Other Republic Products include Carbon and Stainless Steels—Sheets, Strip, Plates, Pipe, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

PRESENTING

a new approach in single spindle machines

Here is a machine of remarkable mechanical simplicity and simplicity of operation. In addition to the many features guaranteeing quick set-up, Model 126 has the power, performance, accuracy, and rigidity for long as well as short runs. Let our sales engineer prove to you the advantages of these features:

1. No cams to change for main turret feeds.
2. No pick-off gears to change in selecting speeds and feeds.
3. Quickly adjustable standard wedge cams for cross slide feeds.
4. Automatic cycle completely controlled from central drum.
5. Pre-selected, automatically changed feeds for each of five turret stations.
6. Open tool area provides maximum chip clearance.
7. Coolant system and chip pan outside machine base.
8. Specifically designed for use of water coolant.

CAPACITY 2⅛" x 6"

Machines for making progress . . .

AUTOMATIC BAR AND CHUCKING MACHINES • PRECISION BORING MACHINES • LUCAS HORIZONTAL BORING, DRILLING & MILLING MACHINES • NEW BRITAIN +GF+ COPYING LATHES

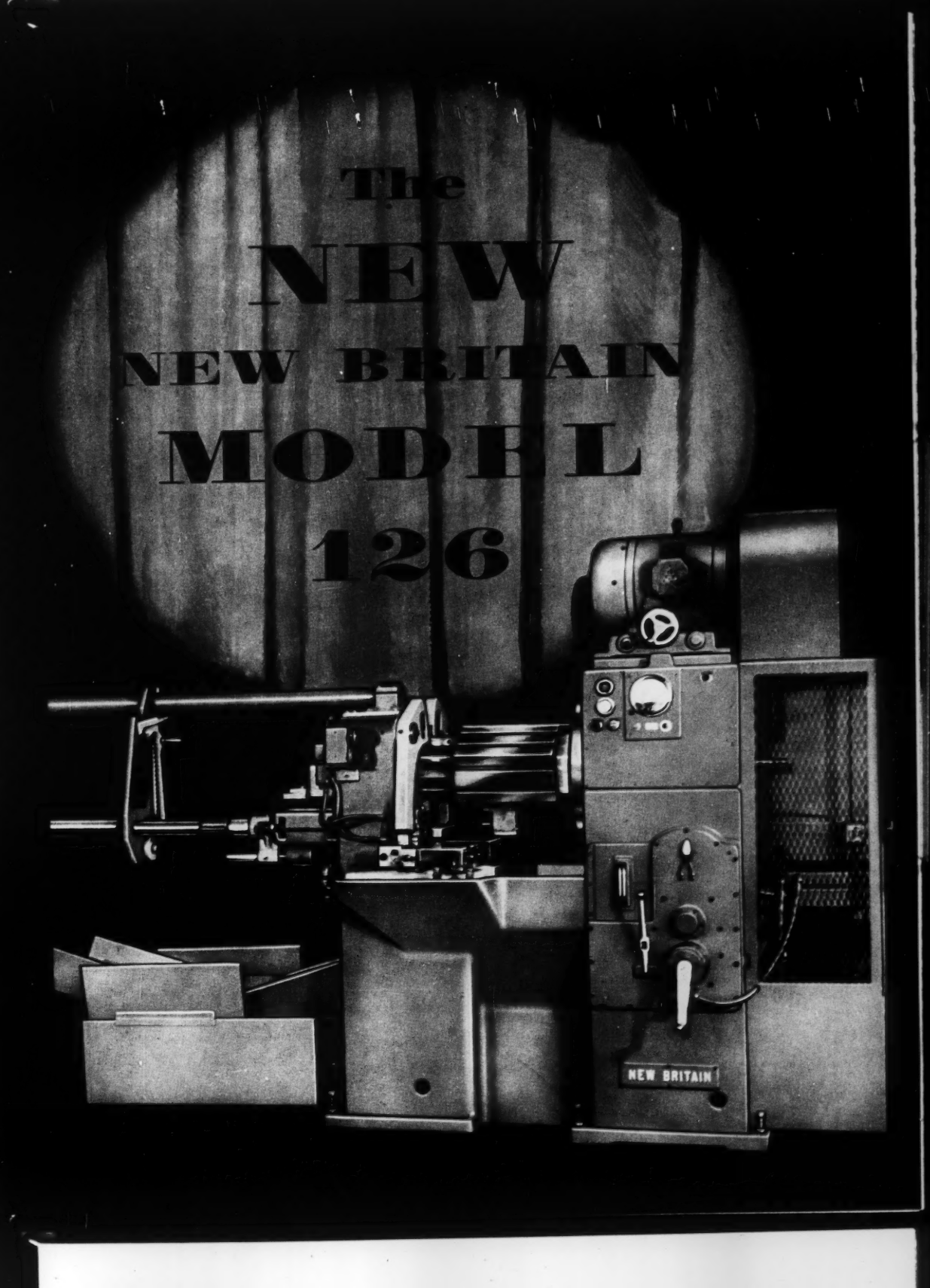
Write

FOR DESCRIPTIVE LITERATURE

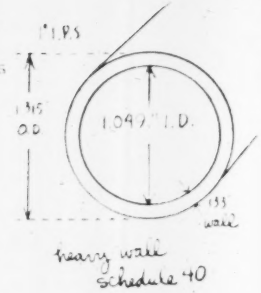
NEW BRITAIN

Automatics

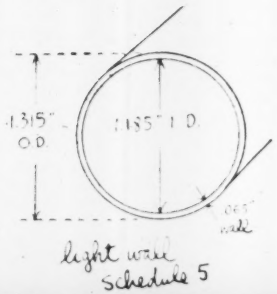
THE NEW BRITAIN-GRIDLEY MACHINE DIVISION
THE NEW BRITAIN MACHINE COMPANY
NEW BRITAIN, CONNECTICUT


The
NEW
NEW BRITAIN
MODEL
126
NEW BRITAIN

Back in the days when iron pipe was virtually the only kind available, it was necessary to specify this



But today with the high strength/weight ratio of stainless steel, the great majority of pipeline and process applications will have an ample margin of safety with this



Why pay for Schedule 40 pipe where Schedule 5 is more than adequate?

All sizes of Carpenter Schedule 5 pipe will easily handle 150 psi working pressures. Sizes under 1½" will safely handle considerably higher pressures.

By specifying this light wall stainless pipe you gain many advantages:

1. You save money. Schedule 5 pipe costs about half as much per foot as Schedule 40.
2. Schedule 5 has the same O.D. as Schedules 10, 40 and 80—for hook-up with existing lines as well as for new installations.
3. Its larger I.D. increases flow and capacity in pipelines, exchangers and other equipment.
4. It's lighter. This means quicker and easier installation.
5. You can save 10% to 25% on valves, fittings, weld rods, etc., because smaller O.D. material can frequently be used.
6. Fittings are available from several manufacturers . . . and stocks of Schedule 5 pipe are carried by conveniently located Carpenter distributors.
7. Tubing sizes can now be replaced with light wall pipe . . . for ready hook-up with standard valves, pumps, etc.

Light wall Schedule 5 pipe saves dollars—and makes a lot of sense!

For complete data on Carpenter Schedule 5 Stainless Pipe, call your nearest Carpenter distributor or write us direct. We'll be glad to send you the information you need. THE CARPENTER STEEL COMPANY, Alloy Tube Division, Union, N. J.

Export Dept.: The Carpenter Steel Co., Port Washington, N.Y. "CARSTEELCO"

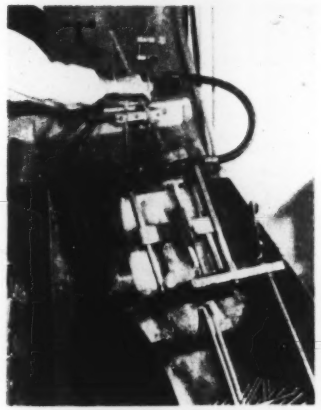
THE U.S. NEEDS YOUR STEEL SCRAP NOW

Carpenter

STAINLESS TUBING & PIPE

Analysis · Tolerance · Finish

· guaranteed on every shipment



Induction Heat Cuts Costs

Operator at Easy Washing Machine Co., Syracuse, N. Y., uses a General Electric Co. 15-kw electronic induction heater to harden basket shafts. Induction coil is inside the quench ring. Hardening costs are down 43 per cent according to the company

time when the machine is in production. Down time can be held to a matter of minutes using spare motors and valves, any one of which can be changed in less than five minutes.

All About Titanium

Information about the mystic metal, titanium, will be co-ordinated and reported in the "Titanium Review". Booklet is quarterly and is published by Rem-Cru Titanium Inc., Midland, Pa.

All aspects of titanium research and development including methods of selecting, testing and fabricating will be discussed. First issue tells about machining practices which have been successful in Rem-Cru's shop.

Lake Ore Boat Named

Iron ore freighter being constructed for National Steel Corp., largest ever built on the Great Lakes, will be named the "Ernest T. Weir" for National's chief executive.

Freighter, 690 feet overall, is under construction at the Lorain, O., yard of American Shipbuilding Co. Launching is scheduled for next October.

Vessel will draw 25 feet, which

Right you are, friend diver, regardless of the method of abrasive cutting you use — or the material you're cutting — there's an Allison Abrasive Wheel that will do the job more efficiently, more economically. Whether it's steel, glass, non-ferrous metals, ceramics . . . tubing, shapes or bar stock . . . Allison Wheels cut at high speeds, cleanly to a few thousandths.

For complete data on both wet and dry cutting . . . information on abrasive machines . . . recommendations for the selection of the *right* Allison Wheel for your job, send coupon for a copy of the NEW Allison Catalog. You'll find it a *treasure chest* of valuable information.

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ABRASIVE CUTTING WHEELS

THE TOUGHER THE CUTTING JOB . . . THE BETTER THE OPPORTUNITY FOR

abrasive cutting

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255 Island Brook Ave., Bridgeport 8, Conn.

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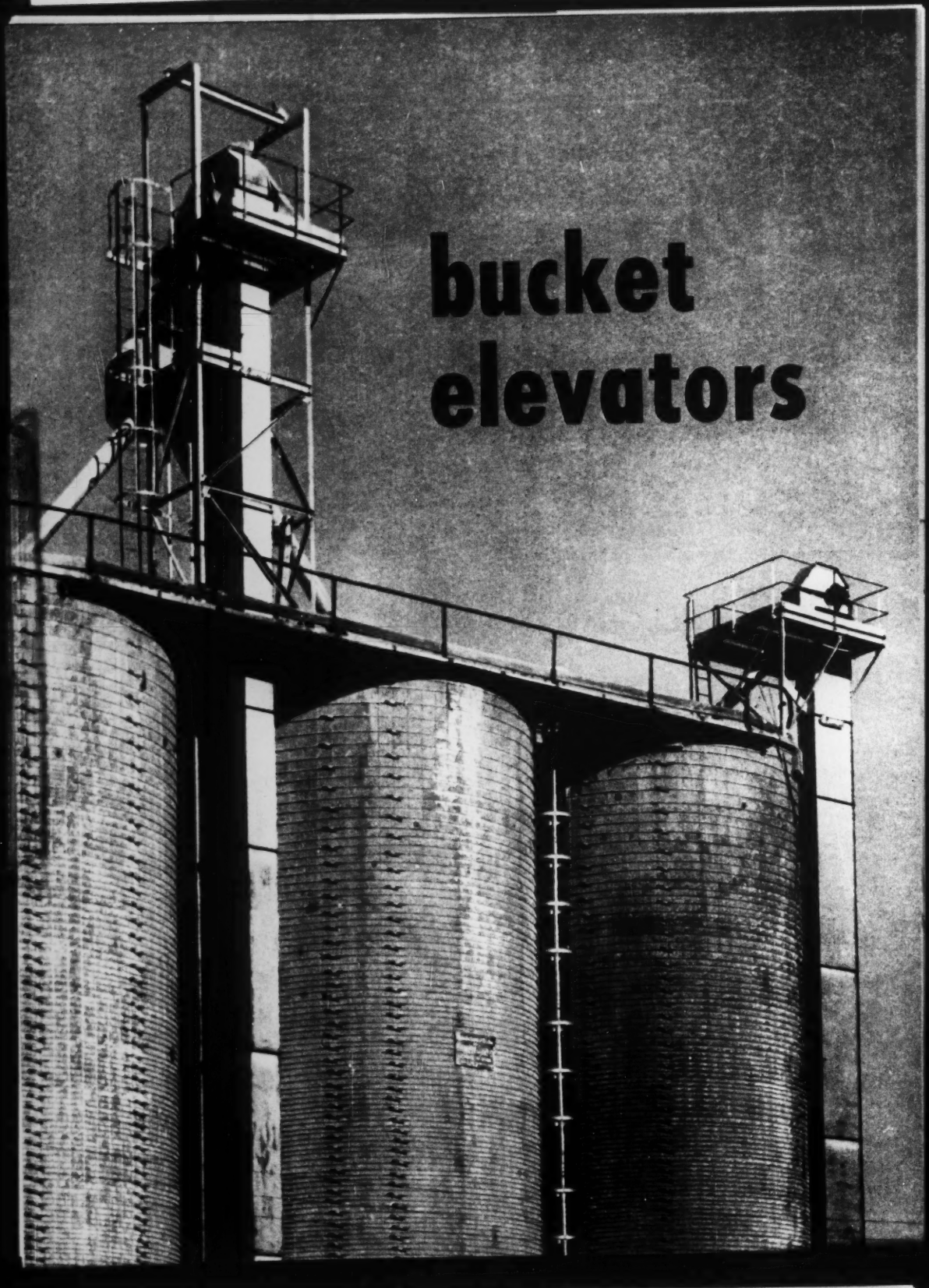
*Company*_____

*St. & No.*_____

*City*_____ *State*_____


bucket
elevators

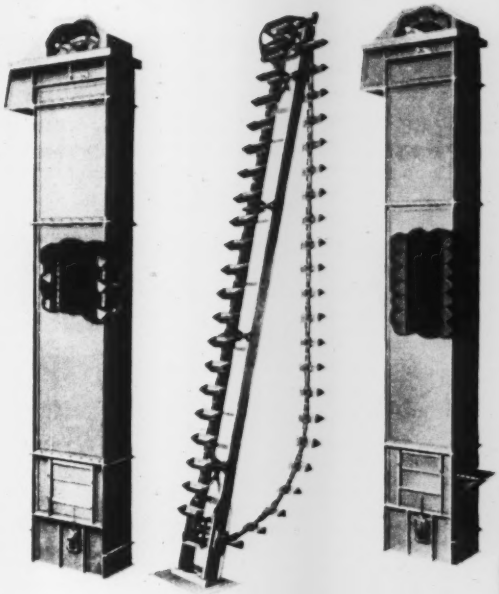
STANDARDIZED

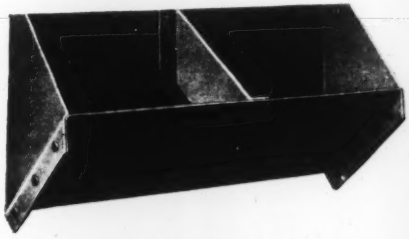
A Type and Size to Meet Most Requirements

Complete Drawings Available

Special Designs for Unusual Applications

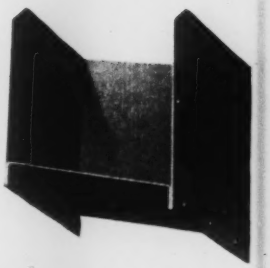
BACKED by { ***YEARS OF EXPERIENCE*** / ***SCORES OF APPLICATIONS*** }

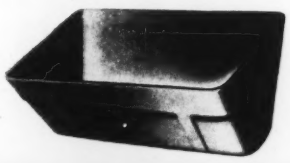


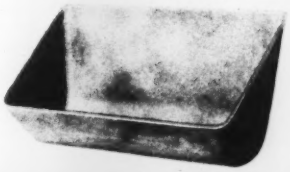


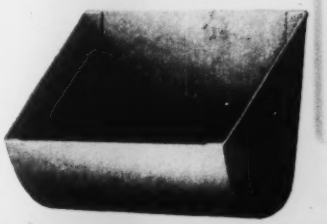
A continuous type bucket is shown above. Jeffrey Bucket Elevators have many improved features: welded angle casings, dust and weather tight, removable hood, increased bearing protection, large inspection doors and others. Let us tell you more about them.

Yes, Jeffrey Bucket Elevators have been STANDARDIZED — to SAVE you money, time and the expense of making layouts. Types include: centrifugal discharge, positive discharge, continuous bucket, super-capacity continuous, and the inclined centrifugal or continuous . . . mounted on chain or belt with Malleable Iron, Supermal or Steel Buckets. A few types are shown on this page.





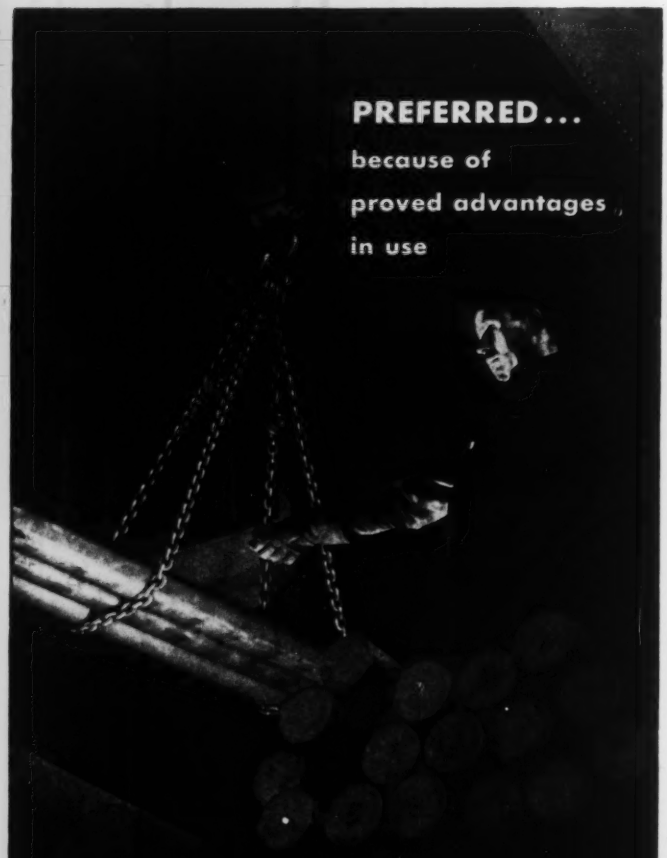




JEFFREY

1877 75 1952

HERC-ALLOY
SLING CHAINS



Production Executives and Safety Directors look for many things in a sling chain—greatest strength, maximum safety, lighter weight, handling ease, resistance to wear, minimum cost against service life.

Because they found all these advantages in HERC-ALLOY by on-the-job experience, it became a matter of course to prefer and specify HERC-ALLOY Sling Chains.

Write for illustrated Data Book No. 3 which contains helpful information on sling chain selection and use

COLUMBUS McKINNON CHAIN CORPORATION
(Affiliated with Chisholm-Moore Hoist Corp.)
GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
District Offices: New York • Chicago • Cleveland
Other Factories at Angola, N. Y., Dixon, Ill., St. Catharines, Ont., Can., and Johannesburg, South Africa

is the maximum available in existing channels. Its capacity will be 20,700 tons of iron ore cargo. It is designed, however, to draw six inches more maximum to take advantage of any future increase in water depth. This will increase the capacity by 600 tons.

New Uses for Plastisols

Vinyl plastisols, employed industrially as coatings for plating racks, are gaining acceptance as more general maintenance coatings, according to United Chromium, Inc. The excellent chemical resistance, resiliency, and physical durability of these coatings suits them to many plating room and other applications.

One of the newest uses for these materials is as a lining for ventilating ducts in a plant that has a strong acid fume condition. The company is confident that the plastisol-lined ductwork will outlast unlined equipment by many years.

Another growing use is as a lining for tanks to hold acids, alkalies, plating and cleaning solutions, and other corrosives. At present there are only a few companies equipped to do such lining work, but the number is growing and some have plans to install equipment that will enable them to handle large tanks.

Other new uses for plastisols are

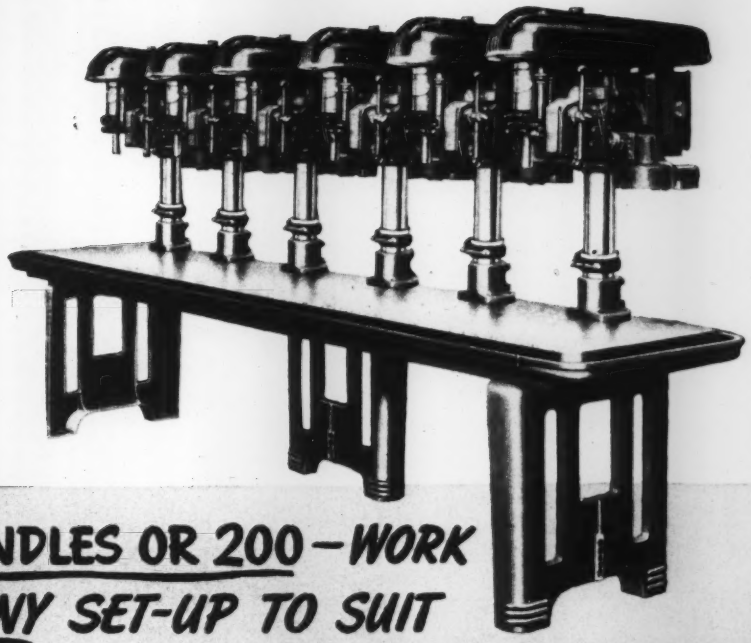
Acid Test

ACID ETCHING can restore illegible data on rusted machine and boiler identification plates. Information often is required for renewal of either an operating license or insurance coverage for the equipment.

Engineers at Sam Tour & Co. Inc., New York, have used the system with good success.

First step is to clean the surface with a solvent. Then the area is treated with an acidic solution. Information stamped on the plate is then clearly legible.

Method depends on the response of cold-worked steel to acid etching. Because die stamping of numbers on metal cold works the metal, numbers can be restored despite subsequent corrosion or abrasion.



2 SPINDLES OR 200—WORK OUT ANY SET-UP TO SUIT YOUR OWN NEED with DELTA DRILL PRESSES

For simultaneous performance of one operation or sequence-performance of such operations as drilling, countersinking and boring, Delta drill presses have the flexibility that makes any set-up not merely possible, but easy.

Low in cost, easy to maintain, readily portable, these drill presses are good examples of fine engineering, rugged construction and compact design—an ideal combination that has made them exceedingly popular.

Patented spindle drive and mounting assures accuracy—and many useful attachments make possible an unusually wide variety of machining operations.

Two models: 14 inch and 17 inch.

DELTA POWER TOOLS Another Rockwell Product

DESIGN YOUR OWN MULTIPLE DRILL SET-UP WITH DELTA SECTIONAL TABLES

Sectional tables consist of center sections to be bolted together between end sections, forming a smooth, sturdy working surface ideal for easy movement of the work through a series of operations.

There's a Delta Power Tool for Your Job-

WOOD OR METAL

53 MACHINES 246 MODELS

More than 1300 Accessories

For Delta Dealers, see your Classified Phone Directory under "Tools"

MILWAUKEE

DELTA POWER TOOL DIVISION

Rockwell MANUFACTURING COMPANY

638K N. Lexington Ave., Pittsburgh 8, Pa.

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PRODUCING AGAIN...
13 HOURS SAVED

Powder-lancing pierces

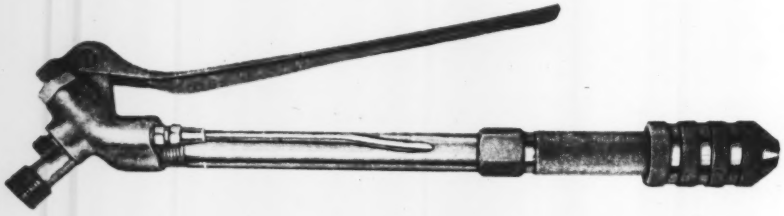
blast-furnace salamander in only ½ **hour**

That's just one case. Other steel mills have gone back into production just as quickly—thanks to the efficient use of powder-lancing.

Powder-lancing is a new idea for increasing the efficiency of oxygen lance operations. By introducing powder into the oxygen stream, an exothermic reaction results producing extremely high temperatures. Holes are easily pierced not only in salamanders, but in concrete, cinder block, fire brick, aluminum, and other materials at speeds up to 11 in. per minute. And lance pipe needs no threading. A twist seals it into the holder.

LINDE'S ACL-1 Powder Lance automatically adds to the oxygen stream the correct amount of powder for best results. For further details, telephone or write today. LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Dominion Oxygen Company, Limited, Toronto.

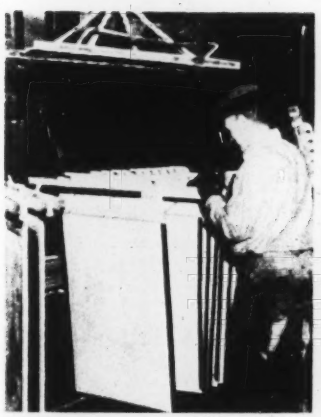
LINDE'S ACL-1 Powder Lance can be used with any standard pipe.



LOOK TO *Linde* Trade-Mark

know-how . . . show-how . . . products and processes
FOR WELDING, CUTTING TREATING, FORMING METALS

The term "Linde" is a registered trade mark of Union Carbide and Carbon Corporation



Plastic Aids Zinc Stripping

At Anaconda Copper Mining Co., zinc removal is facilitated by grooved Aeroflex strips made by Anchor Plastics Co. Inc., New York. Strips separate the zinc deposits and permit easy removal of the zinc from the aluminum. New strips replace wooden ones which broke and were attacked by acids

as coatings for conveyor hooks, degreasing and dipping baskets, drainboards, tank grids, plating barrels, flexible cable, solution agitators, and piping that is submerged or subject to spray.

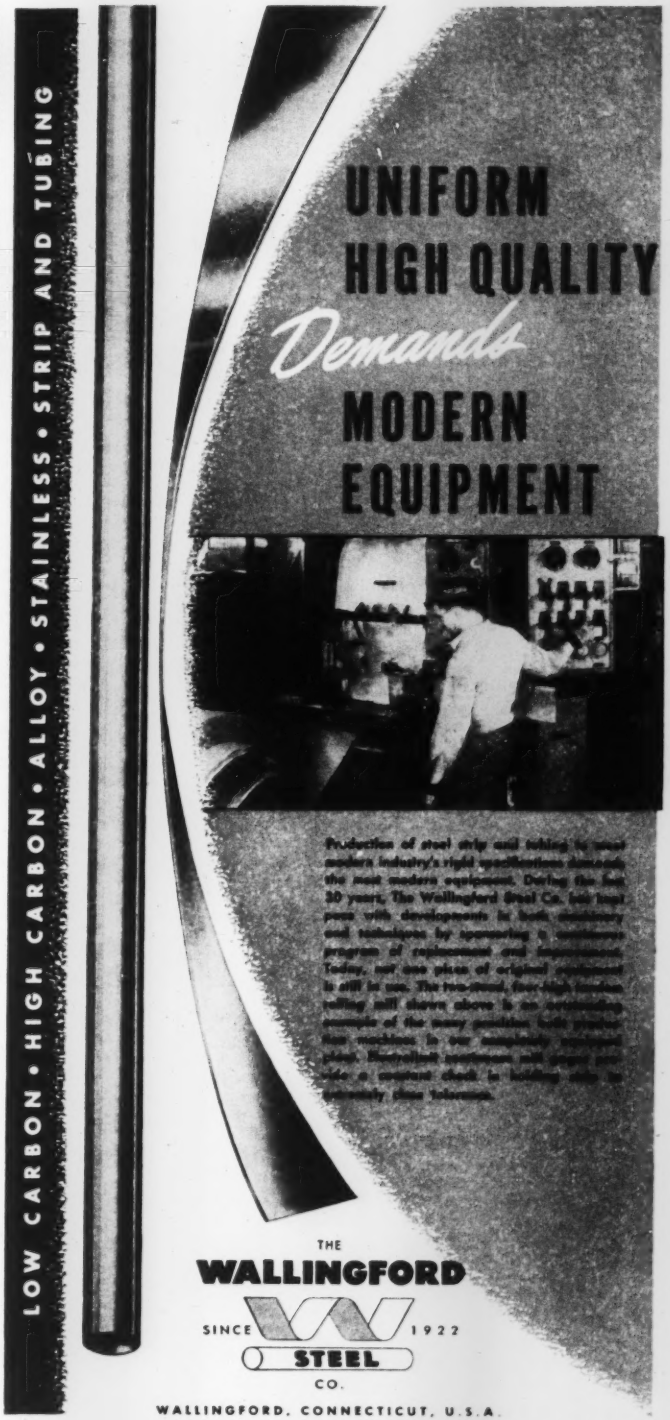
Additional information about the use of plastisols for maintenance purposes may be obtained from United Chromium Inc., 100 E. 42nd St., New York 17, N. Y.

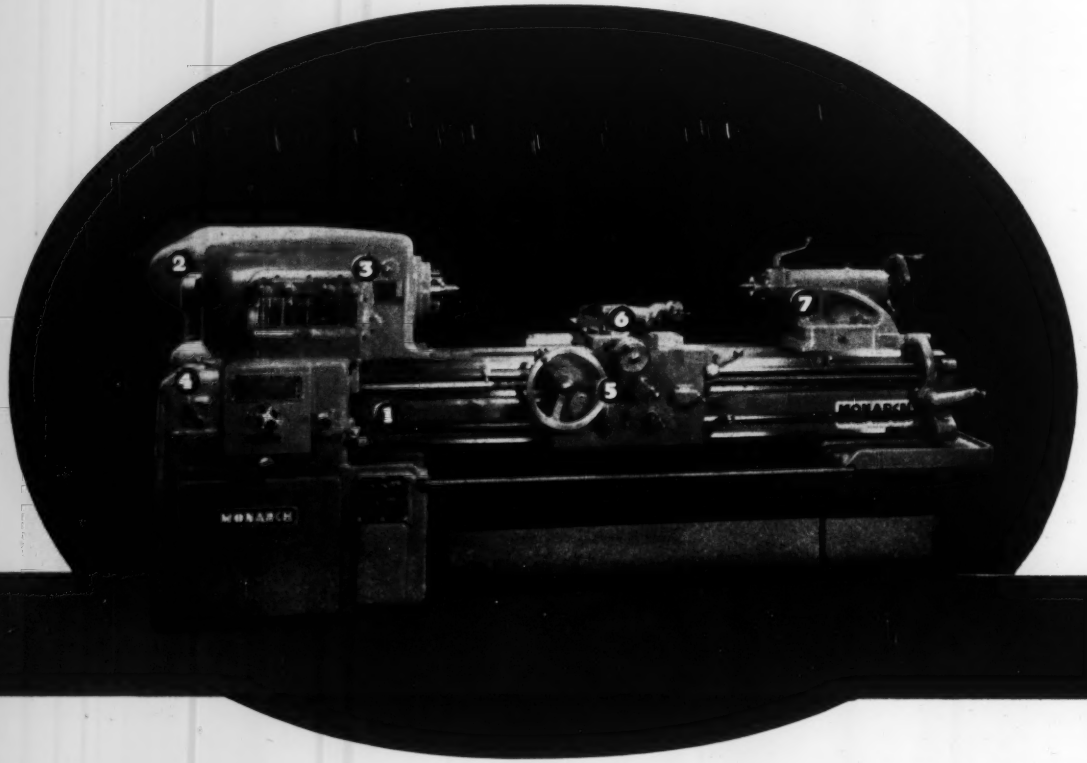
Electric Circular Available

Circular from the National Bureau of Standards gives an overall picture of the sequence of measuring processes by which a self-consistent system of electrical units is built up in the laboratories of the bureau and thence disseminated throughout the country to all interested engineers.

These branching chains of measurement extend outward from the groups of primary standard cells and standard resistors by which the units of voltage and of resistance are maintained from year to year. It ends finally in the myriad measuring operations throughout the nation.

Title of the circular is "Extension and Dissemination of the Electrical and Magnetic Units by the National Bureau of Standards." It


LOW CARBON • HIGH CARBON • ALLOY • STAINLESS • STRIP AND TUBING
UNIFORM
HIGH QUALITY
Demands
MODERN
EQUIPMENT
Production of steel strip and tubing to meet modern industry's rigid specifications demands the most modern equipment. During the last 30 years, The Wallingford Steel Co. has kept pace with developments in both machinery and techniques by sponsoring a continuous program of replacement and improvement. Today, not one piece of original equipment is still in use. The two-stand, four-high tandem rolling mill shown above is an outstanding example of the many precision built production machines in our completely equipped plant. Electrolimit continuous mill gages provide a constant check in holding strip to extremely close tolerance.
THE
WALLINGFORD
SINCE 1922
STEEL
CO.
WALLINGFORD, CONNECTICUT, U.S.A.



1 THE BED

(a) All four bed ways flame hardened and precision ground—for sustained accuracy throughout the life of the lathe.

(b) Bed is cast iron alloy with triangular bridge type construction throughout entire length. Heavy bed sections and extra large guide ways. Bed width (17⅛" on 16" machines, for example) exceeds that of the so-called heavy duty lathes.

2 MAIN DRIVE

(a) Main drive sheave is on its own bearings and is mounted externally for easy accessibility.

(b) Driving clutch and multiple disc brake fingertip controlled by dual levers; one at left hand end of bed, one at apron.

3 THE HEADSTOCK

(a) Hardened, ground or shaved, wide helical gears—for precision power, easier shifting.

(b) Spindle and all shafts are hardened and rotate on anti-friction bearings. Spindle and long intermediate shaft have center bearing support.

(c) Spindle has American Standard 6", Type D-1, Camlock nose. On all types of chucks, plates and fixtures this provides an unequaled means for fast change, close duplication and secure holding.

(d) Standard speed range 19-800 R.P.M. on 13"; 17-700 R.P.M. on 16" and 20". Other ranges available optionally for special requirements. More efficient power delivery within the entire range results from the absence of extreme minimum and maximum speeds.

(e) Combined pump and splash lubrication with filtered, metered oil to each bearing. There's always more than ample lubrication for sustained operation at higher speeds.

4 GEAR BOX AND END GEAR TRAIN

(a) Both are totally enclosed and automatically lubricated—an exclusive Monarch feature. This preserves original accuracy by preventing accidental introduction of foreign matter of all kinds and assuring constant, adequate lubrication.

(b) Wide range of feed and thread changes (66) including the frequently required 27 threads per inch.

(c) End gearing quadrant positively anchored for perfect matching of teeth.

(d) A Metric gear box may be supplied instead of regular English gear box. Metric transposing end gearing available for use with English gear box; English transposing end gearing for use with Metric gear box. Module transposing gears available.

(e) All gears and shafts of power train made of alloy steel. Hardened gears have ground or shaved tooth contours. Anti-friction bearings throughout.

5 THE APRON

(a) Box type apron casting. Fast, fingertip controls for longitudinal feed, cross feed reverse and half nut. Cross feed and longitudinal feed drive through worm and worm gear unit to large, positive operating frictions.

Inside Stuff!

Facts...not Fancies...About the Great Monarch Series 60

The Monarch Series 60 Lathe, examined in detail here, is a versatile and thoroughly modern machine, available as an engine lathe or, more extensively equipped, as a toolmaker's lathe. It is offered without such additional designations as medium duty, heavy duty, production, etc., which do nothing but confuse or admit certain limitations. Within its rated capacity the Series 60 is just as capable of sustained, heavy duty production as any lathe on the market—much more so than most. Just compare specifications! There is a sensible range of swing sizes—13", 16" and 20". This concentration on a small number of swings enables us to build more value into the Series 60 at no extra cost to you. Generous bed size, power and weight make these machines efficient producers with plus-swing. The 16" machine, for example, which normally swings 18½" over the bed, is furnished in a range of plus-swing sizes which swing up to 24" over the bed.

Basic versatility of the Series 60 is supplemented by an exceptionally large assortment of accessory equipment—including any of three types of tracer controls which may be applied to step up productiveness on an immense variety of work. For complete information, write on your business letterhead for our free illustrated Series 60 Booklet No. 1113... *The Monarch Machine Tool Company, Sidney, Ohio.*

(b) On Toolmaker's Lathes, leadscrew reverse operated by lever at right of apron. Leadscrew on Engine Lathes operated by lever at front of headstock.

(c) Automatic, pressure, metered lubrication to all moving apron parts, to carriage bearing on bed and to bottom slide bearing on carriage. Lubrication is automatic whether the machine is power or manually operated.

(d) All apron gears of hardened alloy steel with tooth contours either ground or shaved. Revolving shafts ball bearing mounted.

6 CARRIAGE, CROSS SLIDE AND COMPOUND REST

(a) Carriage and cross slide have extra thickness for sustained, heavy duty service.

(b) Cross feed screw and compound screw are induction hardened and ground. Large diameter cross feed and compound micrometer dials, graduated in thousandths to read directly in diameter.

7 THE TAILSTOCK

(a) Hardened and ground large, alloy steel tailstock spindle and tailstock screw, which takes thrust against ball thrust bearing. No rotating spindle play during drilling and reaming operations.

(b) Quick clamping type tailstock regular equipment on Toolmaker's Lathes.

INSPECTION TOLERANCES

The Series 60 is, in every sense, a precision lathe. The typical inspection tolerances which follow prove this beyond all doubt.

Total spindle center run out	.0003
Total spindle nose run out	.0002
Total cam action of spindle	.0003
Run out on face of 12" face plate	.0003
Tailstock taper alignment—vertical—high at end of 12" test bar	.00025
Maximum leadscrew cam action	.00025
Maximum leadscrew lead error in any 4"	±.0004
Lathe must turn round with work mounted in chuck within	.0001
Lathe must turn cylindrical with work mounted between centers (12" test bar) within	.0004

Monarch
ACCURACY • ECONOMY • LONG LIFE
TURNING MACHINES

FOR A GOOD TURN FASTER [illegible]RN TO MONARCH

FOLLANSBEE
COLD ROLLED STRIP
PRECISION ROLLED TO YOUR SPECIFICATIONS

Follansbee offers the special attention and services which only the flexibility of a compact organization can provide. If you need Cold Rolled Strip Steel, Follansbee merits your consideration as a source for your supplies.

Follansbee brings to the rolling of this staple product its many years of experience as a maker of high quality steel specialties. This means that you can rely on Follansbee to furnish you with Strip that meets your most exacting requirements in Temper, Gauge, and Width.

On your next order for Cold Rolled Strip—or other steels—it will pay you to check with Follansbee.

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

POLISHED BLUE SHEETS AND COILS SEAMLESS TERNE ROLL ROOFING
COLD ROLLED STRIP

Sales Offices: New York, Philadelphia, Rochester, Cleveland, Detroit, Milwaukee. Sales Agents: Chicago, Indianapolis, Kansas City, Nashville, Los Angeles, San Francisco, Seattle, Toronto and Montreal, Canada.
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FOLLANSBEE METAL WAREHOUSES
Pittsburgh, Pa. Rochester, N.Y. Fairfield, Conn.

was written by Francis B. Silsbee. Send 25 cents to the Government Printing Office, Washington 25, for a copy.

Domestic Liners for Metal Cans

Development of can-lining enamels, made entirely of domestic materials, promises to extend greatly the use of tin-free steel plate for packaging food products, says J. Roger Deas, special representative of American Can Co.

Speaking before a banquet, highlighting a national West Coast conference of the Society of Automotive Engineers, Mr. Deas described American Can's long-range research program aimed at freeing permanently the nation's container industry from dependence upon imported can-making materials.

He termed the program as "operation survival" and said that already the company has found ways to make cans with tin-free solders that give every promise of adaptability to universal use.

"Steel plate cans using a special plastic cement instead of solder for sealing side-seams now are in use by a number of non-food packers," Mr. Deas declared.

Dough in the Air

SINCERITY of industry effort to reduce air contamination is shown in amount of dollars spent for abatement and control facilities. More so when we realize that there is almost never a dollar return on the investment.

For the past six years Dupont's expenditures at the Cleveland works for air pollution control have ranged from $20,000 to $50,000 per year

Compound Makes a Better Brake

Collector rings for brake motors are now being molded from rubber-phenolic compounds manufactured by General Electric's chemical division. Cost reduction and improvement in electrical characteristics result. Rings are being molded by Rockford Molded Products Co., Rockford, Ill., for Warner Electric Brake & Clutch Co., Beloit, Wis.

Before this compound was adopted for the application, brass slip

Perfect Balance

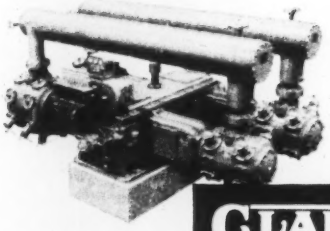
is essential in air compressors, too

In air compressors, perfect balance is of *prime* importance. It means vibration-free performance.

Clark Balanced/Opposed, Motor-Driven Compressors are the *first* heavy duty air compressors to incorporate perfect balance, therefore the first to assure you of *all* these advantages in the 150—4500 horsepower range:

- Installation anywhere—on upper floors, steel framework, alongside delicate machines.
- Substantially reduced foundation requirements.
- Extra long compressor life, with a minimum of maintenance.
- No vibration or noise to be transmitted within the plant or to nearby buildings.

For complete information on the truly modern Clark Balanced/Opposed Compressor line, request Bulletin 118.



CLARK BROS. CO. · OLEAN, N. Y.
DIVISION OF DRESSER OPERATIONS, INC.
Sales Offices in Principal Cities Throughout the World

CLARK **balanced/opposed compressors**
PRECISION BY THE TON

© 1952, Clark Bros. Co., Division of Dresser Operations, Inc.

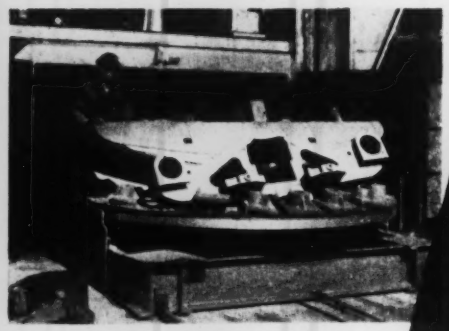
NOW large, unwieldly castings are cleaned faster and cheaper by WHEELABRATING

WHEELABRATOR ® ROOMS eliminate the tedious, unhygienic labor of hand blasting

Cleaning large, unwieldly castings in an airblast room is
slow, expensive and unhygienic. To overcome these han
American has perfected a complete line of Wheelabrator R
employing unique work handling mechanisms—whose fa
omical performance has been proved in many actual inst

The Wheelabrator Room eliminates much of the man
required in airblast room operation; it provides po
posure of the work to the abrasive barrage of one or mo
Wheelabrator units; it eliminates the handicap of w
tective clothing; it will handle any size work at high
speeds and at greatly reduced cost.

Write today for details on how a Wheelabrator
profitably applied to your problem. Ask for Catalo

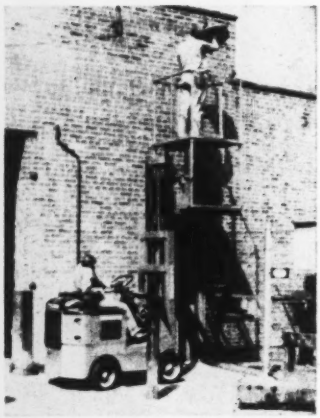


A reduction of 32 man hours in direct cleaning room labor and a drastic slash in the cost of chipping and grinding were the immediate results of the installation of this Wheelabrator Room at American Hoist & Derrick Co., St. Paul, Minn.

Wheelabrator® AIRLESS BLAST CLEANING — American

OFFICES IN PRINCIPAL CITIES

AMERICAN WHEELABRATOR & EQUIPMENT CORP. 509 S. Byrkit St., Mishawaka 3, Ind.



Fork Truck Is Elevator

Built for maintenance department functions, this double-decked platform rests securely on the Towmotor forks. It eliminates the element of risk attending use of ladders and improvised scaffolding. Lower deck provides space for maintenance materials

rings were shrunk on a laminated tube. When molded rings were tried using conventional phenolics and brass rings as inserts, cracking resulted due to the varying shrinkage coefficient between the two materials.

Because of the high internal resiliency of the new compound, the assembly is now being produced by further compressing the brass rings into the molded part after molding.

Parts in Production

If you're going to the 34th National Metal Exposition and Congress you can see them making metallized jewelry or small parts of plastic or low-cost metal. You can also see toy train parts in production.

The demonstrations will be featured in the F. J. Stokes Machine Co. booth. Show is to be in Philadelphia, home of Stokes Co., on October 20 to 24.

Bucket for Midget

The midget crawler-type tractor, Agricat, now has a hydraulic-operated front-end bucket which adds to the tractor's utility. Both bucket and tractor are products of Earl H. Pence & Co. Inc., San Leandro,

Calif. Tractor is only 6 feet long and has shown good performance in tight areas.

Hot Vapor Cuts Pickle Cost

Conversion of indirect-fired furnace to hot atmosphere gives shot in arm to output

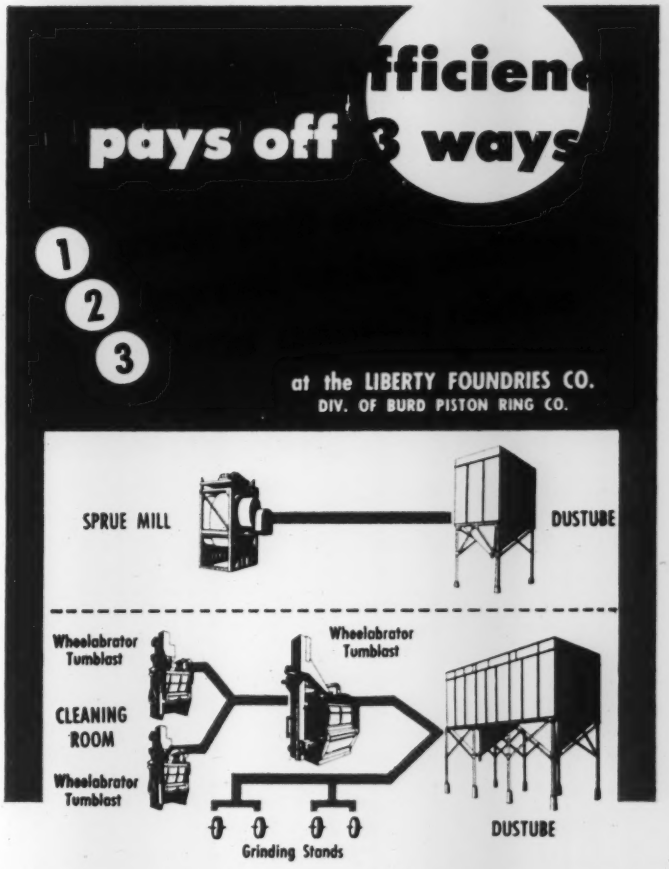
ELIMINATION of an operation in a manufacturing process is a welcome change to any producer. Particularly if the elimination in no way detracts from the quality of the product.

A recent installation of the hot atmosphere system in the conversion of a continuous roller hearth furnace for annealing welded stainless steel tubing is a case in point. The primary reason for converting was to provide a high degree of protection against scaling or oxide formation on the surfaces of the stainless steel tubes during annealing or normalizing.

Improved Method — Previous practice had been to anneal the tubes in a gas-fired, radiant tube, continuous furnace. Despite this provision for indirect heating to avoid contamination by the products of combustion, oxide formation on the tube surface was heavy. It required an elaborate and costly operation of pickling and cleaning after each anneal. The installation of lithium vaporizers in conjunction with standard exothermic gas cracking chambers, attached to the furnace, provided the means for protecting the surface of the work and for adding heat to the furnace.

Lithium vapor, produced by heating the lithium compound in the vaporizer, is a product of Lithium Co., Newark, N. J. Vapor mixes with products of combustion gases resulting from the heating. This hot mixture together with the hot exothermic atmosphere from the gas cracker is distributed throughout the furnace to provide the necessary surface protection for the tubing. Production of more consistent surface qualities, as well as the protection against scaling, reduced the cleaning cost and time as much as 65 per cent. Loss due to rejects was also decreased.

Because the atmosphere is hot, it obviously adds a considerable amount of heat to the furnace both



Performance you can expect from a Dustube is illustrated in the manner in which a severe dust problem was solved at Liberty Foundries Company. Dust which had formerly escaped into the atmosphere is now trapped with virtually 100% efficiency with Dustube Collectors. In fact, a recent study revealed one of the lowest dust counts of all foundries in the state.

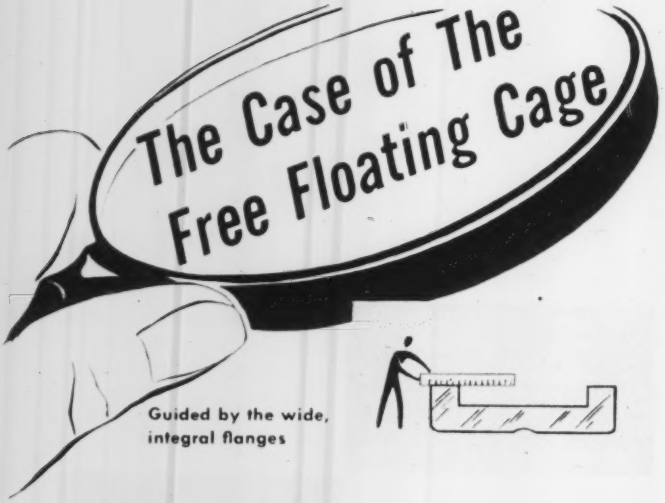
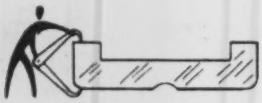
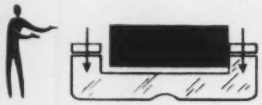
"The Dustube Collectors have been a profitable investment" says Mr. C. M. Dale, Vice President, "for numerous reasons: (1) Profit margins are greater as the Dustubes cost less to operate and maintain; (2) The Dustubes effectively prevent all dust from permeating the atmosphere making our foundry a better place in which to work; (3) Dust which formerly had been exhausted into the neighborhood is now controlled and collected."

Dustubes will give you this same efficient, dependable dust collection. Write today for full details.

American dustube® COLLECTORS

OFFICES IN PRINCIPAL CITIES

AMERICAN WHEELABRATOR & EQUIPMENT CORP. 509 S. Byrkit St., Mishawaka 2, Ind.


The Case of The Free Floating Cage
Guided by the wide, integral flanges

Flanges are thick, solid, really rugged . . .
To give fullest support to the cage

RBC's

PITCHLIGN
TRADE MARK
ROLLER BEARINGS

PITCHLIGN bearings have a full length, free floating cage with *pitch circle contact!* Any tendency of the rollers to thrust is absorbed by the heavy integral flanges of the outer race. Completely relieved of this burden, the cage *cannot* distort and so fail in its vital duty of roller alignment. This is the one positive method of doing away with cocking and skewing. Only PITCHLIGN has it!

PITCHLIGN performs where others fail . . . interchangeable with precision needle bearings, of course. Get the facts!

Write for Bulletin SF-566

RBC

ROLLER BEARING COMPANY OF AMERICA • TRENTON, N. J.

by conduction and convection to supplement the normal heat supplied by the radiant tubes. It increases furnace productivity appreciably. The hot lithium atmosphere causes work entering the furnace to come up to heat far more readily than in conventional atmosphere furnaces or in indirectly heated furnaces operating without any atmosphere.

No Small Item—Fuel saving derived from direct utilization of the hot gases from the exothermic generators and lithium vaporizers is significant because virtually the entire heat potential resulting from preparing the atmosphere is available for heating the work within the furnace chamber and is not wasted, as it would be with exothermic systems, where the gases run through cooling systems.

Depending on the material to be heat treated, lithium coated tubes can be cold worked with a fine resulting finish, without being pickled or cleaned.

German Firm Picks U. S. Agent

United States distributorship for the complete line of machine tools made by Ludwig Loewe & Co., Berlin, Germany, has been assigned to Eric R. Bachmann, Long Island City, N. Y.

Loewe-made equipment includes lathes, milling machines, grinders and honing machines.

First Generator Shipped

First waterwheel generator built west of the Rockies has been shipped from the Sunnyvale, Calif., plant of Westinghouse Electric Corp. It will be installed in one of the oldest electric power plants.

Machine is the first of twelve 1200-kw vertical induction generators ordered by Portland General Electric Co. for its Oregon City, Oreg., hydroelectric generating station.

College on Wheels

Fleet of converted motor busses is now touring the country representing the Miller Motor Co., Melrose Park, Ill. Called the "College of Cylinder Knowledge," the units contain exhibits that instruct users in the proper use and care of air and hydraulic cylinders.

When you have an eye for quality....nothing but the finest is ever acceptable

Courtesy of DeBeers Consolidated Mines, Ltd.

Ohio Ferro-Alloys CORPORATION

has, for the past quarter century, offered the iron and steel industry the best obtainable Ferro-Alloys.

Immediate delivery. Inquiries are invited.

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Chicago Detroit Pittsburgh Tacoma Seattle
Minneapolis Birmingham San Francisco Los Angeles

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SAN FRANCISCO AREA — Pacific Graphite Company, Inc., Oakland 8, California.
LOS ANGELES AREA—Snyder Foundry Supply Company, Los Angeles 11, California.
MINNEAPOLIS AREA — Foundry Supply Company, Minneapolis, Minnesota.
DENVER, COLORADO—Metal Goods Corporation.
CANADA—Overseas Commodities, Ltd., Vancouver, B. C.
MEXICO—CIA. Proveedora de Industrias, S. A. Mexico, 6, D. F., Mexico.

SALES AGENTS, NO WAREHOUSES:

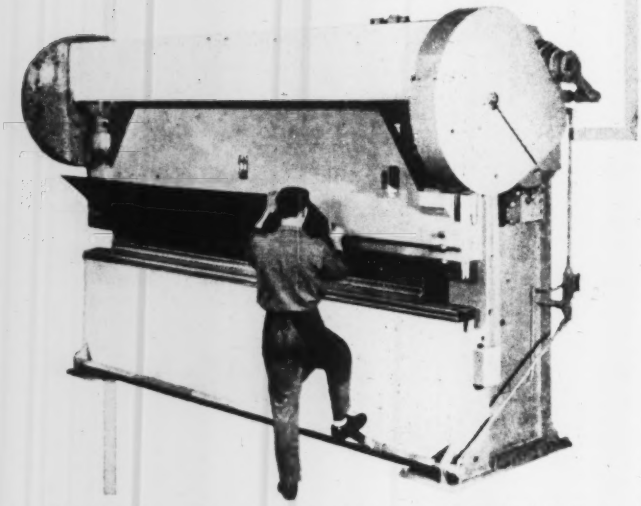
NORTHWEST AREA — E. A. Wilcox Company, Arctic Building, Seattle 4, Washington; Phone Mutual 1468.

BIRMINGHAM DISTRICT—Schuler Equipment Company, First National Building, Birmingham, Alabama.

How many Features can a Press Brake have!..

CHECK THESE BATH FEATURES

- Built-in overload release mechanism
- One-piece welded steel frame
- Removable adjustable dovetail slotted bed top
- Double-end drive from both housings
- Reversible unit flywheel assembly
- Twin Disc double-plate type clutch and brake
- Clear working space front and rear
- Tonnage indicators at each end of bed
- Up to 40% less power required



These are but a few of the 21 outstanding features you get in every BATH power press brake . . . the features that assure continuous trouble-free production. Superior construction of BATH presses results in long service life, maximum safety for both operator and machine, minimum maintenance and quick installation. Patented release mechanism, which immediately disengages flywheel when excessive load is imposed, is one reason why BATH presses are noted as safe, dependable production tools.

Write today for illustrated 28 page Catalogue No. S-1002 for complete information.

THE CYRIL BATH COMPANY

6972 MACHINERY AVENUE • CLEVELAND 3, OHIO

CALENDAR OF MEETINGS

September 8-9, National Society of Lubrication Engineers: National symposium on fundamentals of friction and lubrication in engineering. Hotel Sherman, Chicago. Society address: 343 S. Dearborn St., Chicago 4. Secretary: W. F. Leonard.

September 8-10, American Standards Association: National standardization conference. Museum of Science & Industry, Chicago. Association address: 70 E. 45th St., New York 17. Secretary: G. F. Hussey Jr.

September 8-11, American Institute of Mechanical Engineers: Fall meeting. Hotel Sheraton, Chicago. Society address: 29 W. 39th St., New York 18. Secretary: C. E. Davies.

September 8-12, Instrument Society of America: Annual fall meeting and exhibit. Public Auditorium & Hotel Cleveland, Cleveland. Society address: 921 Ridge Ave., Pittsburgh 12. Secretary: Richard Rimbach.

September 9-11, Society of Automotive Engineers: National tractor meeting. Hotel Schroeder, Milwaukee. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

September 9-13, American Chemical Society, Chicago Section: National chemical exposition. Chicago Coliseum, Chicago. Address: 86 E. Randolph St., Chicago 1.

September 10-12, Porcelain Enamel Institute: Shop Practices Forum, University of Illinois, Urbana, Ill. Institute address: Du Pont Circle Bldg., Washington 6. Secretary: John C. Oliver.

September 11, American Iron & Steel Institute: Regional technical meeting, Palmer House, Chicago. Institute address: 350 Fifth Ave., New York 1. Meeting director: Frank Ragland.

September 11-14, Packaging Machinery Manufacturers Institute: Annual meeting, The Homestead, Hot Springs, Va. Institute address: 342 Madison Ave., New York 17.

September 14-17, National Automatic Merchandising Association: Annual meeting and exhibit, Palmer House, Chicago. Association address: 7 S. Dearborn St., Chicago. Secretary: C. S. Darling.

September 14-18, Pressed Metal Institute: Annual fall meeting, Pocono Manor, Pa. Institute address: 2860 E. 130th St., Cleveland 20. Manager: Orrin B. Wentz.

September 14-19, American Chemical Society: Fall meeting, Atlantic City, N. J. Society address: 1155 16th St., NW, Washington. Executive secretary: Alden H. Emery.

September 14-20, Concrete Reinforcing Steel Institute: Semi-annual fall meeting, The Broadmoor, Colorado Springs, Colo. Institute address: 38 S. Dearborn St., Chicago 3. Secretary: H. C. Delzell.

September 15-17, Allied Railway Supply Association: Annual meeting, Hotel Sherman, Chicago. Association address: 109 N. Wabash Ave., Chicago 2. Secretary: Charles F. Weil.

September 16-17, Industrial Truck Association: Fall meeting, Hotel Cleveland, Cleveland. Association address: 900 F St. NW, Washington 4. Secretary: W. Van C. Brandt.

September 18, Material Handling Institute: Hotel Cleveland, Cleveland. Institute address: 731-732 DuPont Circle Bldg., Washington 6. Managing director: R. Kennedy Hanson.

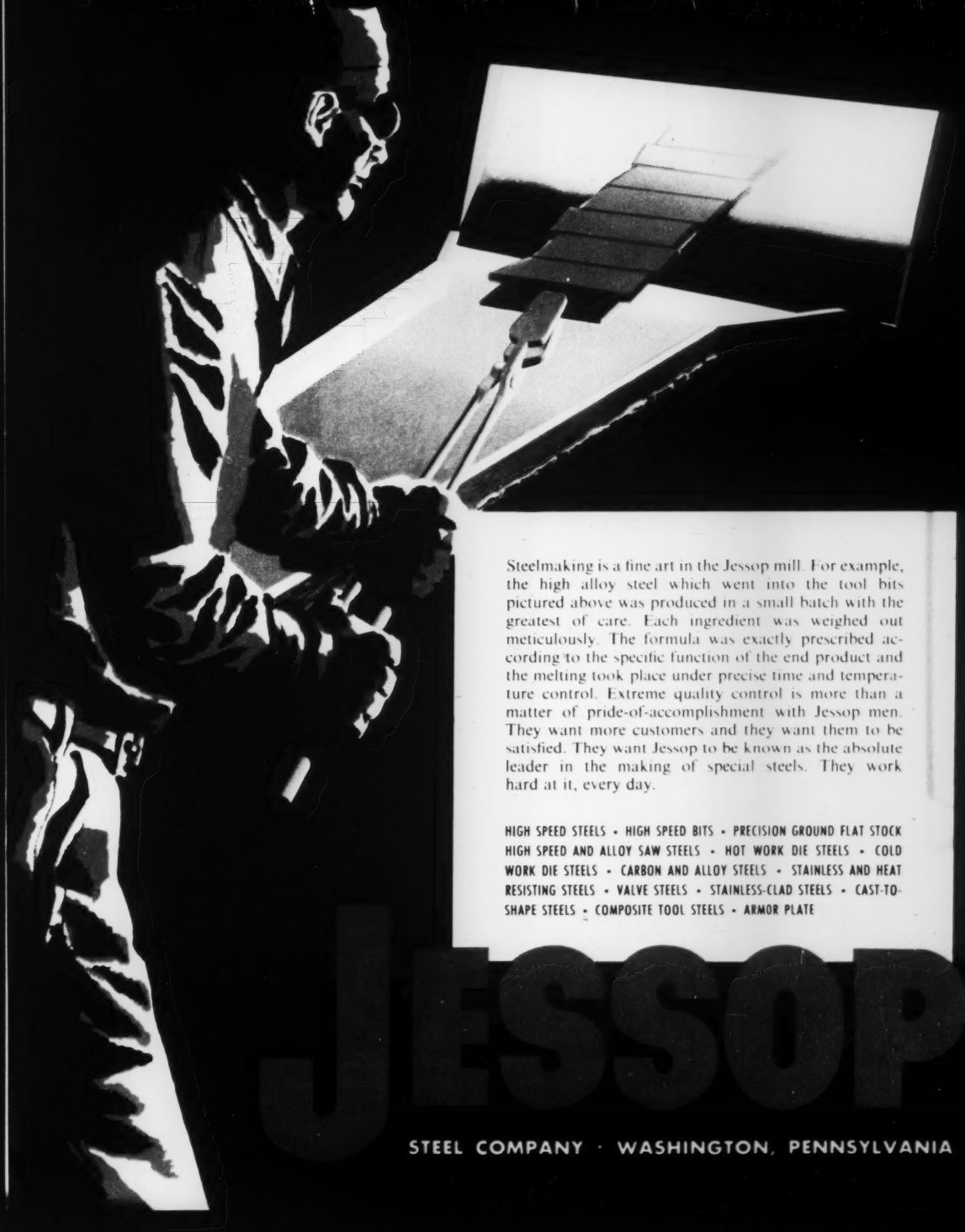
September 19, The Wire Association, Nonferrous Division: First regional meeting. Elton Hotel, Waterbury, Conn. Association address: 453 Main St., Stamford, Conn. Executive secretary: Richard E. Brown.

September 19-20, Automotive Engine Rebuilders Association: Midyear meeting, board of directors, Edgewater Beach Hotel, Chicago. Association address: 419 N. Capitol Ave., Indianapolis. Executive vice president: R. G. Patterson.

Sept. 22-23, American Coke & Coal Chemicals Institute: Fall meeting. The Greenbrier, White Sulphur Springs, W. Va. Institute address: 711 14th St. NW, Washington 5. Executive secretary: Samuel Weiss.

September 22-23, Steel Founders' Society of America: Fall meeting, The Homestead, Hot Springs, Va. Society address: 920 Midland

quality steel is more than pride at JESSOP



Steelmaking is a fine art in the Jessop mill. For example, the high alloy steel which went into the tool bits pictured above was produced in a small batch with the greatest of care. Each ingredient was weighed out meticulously. The formula was exactly prescribed according to the specific function of the end product and the melting took place under precise time and temperature control. Extreme quality control is more than a matter of pride-of-accomplishment with Jessop men. They want more customers and they want them to be satisfied. They want Jessop to be known as the absolute leader in the making of special steels. They work hard at it, every day.

HIGH SPEED STEELS • HIGH SPEED BITS • PRECISION GROUND FLAT STOCK HIGH SPEED AND ALLOY SAW STEELS • HOT WORK DIE STEELS • COLD WORK DIE STEELS • CARBON AND ALLOY STEELS • STAINLESS AND HEAT RESISTING STEELS • VALVE STEELS • STAINLESS-CLAD STEELS • CAST-TO-SHAPE STEELS • COMPOSITE TOOL STEELS • ARMOR PLATE

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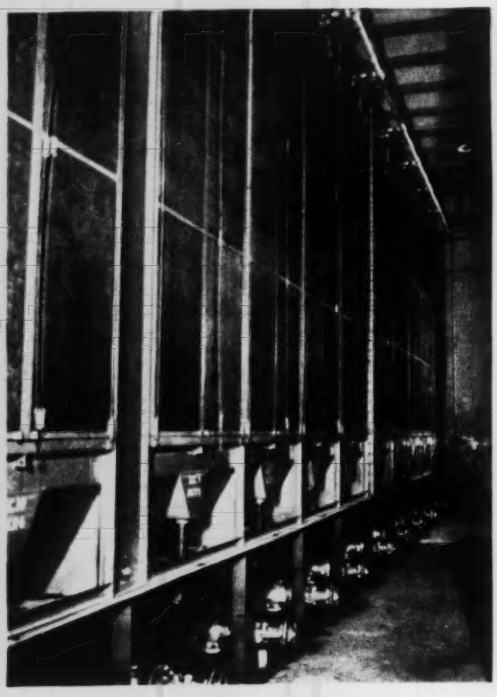
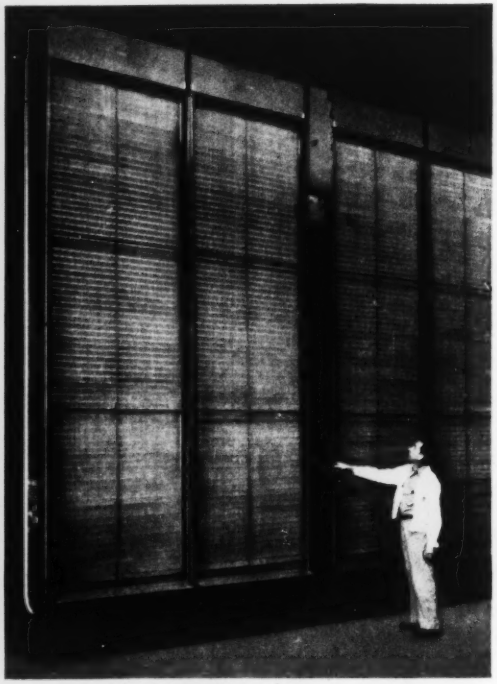
STEEL COMPANY · WASHINGTON, PENNSYLVANIA

clean air costs less than dust!



A bank of AAF ELECTROMATICS in service at Weirton Steel Company. Fully automatic and self-cleaning, these electronic precipitators require minimum maintenance.



Developed specially for the steel industry in 1928 by American Air Filter, the MULTIDUTY features overlapping panel construction. Photo above shows latest model.

AAF offers two proved units for mill motor rooms

Two good reasons why more and more steel mills are specifying AAF air-cleaning equipment are the ELECTROMATIC precipitator and the MULTIDUTY air filter. Thousands of these proved units are now in service throughout the country. Their day by day performance cuts maintenance costs, reduces costly shutdowns and increases general operating efficiency. Mill motors last longer when these air-cleaners are on hand.

ELECTROMATIC—The only automatic electronic precipitator—an exclusive development of AAF engineering and research combining the advantages of electronic air-cleaning and automatic operation.

MULTIDUTY—The most widely-used automatic air filter—employs an overlapping panel construction of exclusive design. This results in high cleaning efficiency and positive self-cleaning of the filter elements to maintain uniform air delivery.

For complete engineering data on AAF equipment contact your nearest American Air Filter representative... or write for "Composite Catalog"—Bulletin No. 510, American Air Filter Company, Inc., 302 Central Avenue, Louisville 8, Kentucky.

American Air Filter
COMPANY, INC.
443 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q. • Pacific Division Office, San Francisco, Cal.

Bldg., Cleveland 15. Secretary: K. Kermit Donaldson.

September 22-24, National Truck Body Manufacturers Association: Annual meeting. Muehlebach Hotel, Kansas City, Mo. Association address: DuPont Circle Bldg., Washington. Secretary: Shipley D. Burton.

September 22-25, American Mining Congress: Metal & nonmetallic mineral mining conference. Denver. Congress address: 1102 Ring Bldg., Washington 6. Secretary: Julian Conover.

September 24-26, American Hot Dip Galvanizers Association Inc.: Fall meeting. The Greenbrier, White Sulphur Springs, W. Va. Association address: 1506 First National Bank Bldg., Pittsburgh. Secretary: Stuart J. Swennson.

September 28-October 2, National Screw Machine Products Association: Fall membership meeting. The Broadmoor, Colorado Springs, Colo. Association address: 2860 E. 130th St., Cleveland 20.

September 29-30, American Machine Tool Distributors Association: Annual meeting. The Cavalier, Virginia Beach, Va. Association address: 1900 Arch St., Philadelphia 3. Executive secretary: Thos. A. Fernley.

September 29-Oct. 2, American Institute of Steel Construction Inc.: Annual convention. Empress Hotel, Victoria, B.C. Institute address: 101 Park Ave., New York 17. Executive vice president: L. Abbett Post.

September 30-Oct. 3, Association of Iron & Steel Engineers: Fall meeting and exhibit. Hotel Statler and Public Auditorium, Cleveland. Association address: 1010 Empire Bldg., Pittsburgh 22. Director: T. J. Ess.

OCTOBER

October 3-4, American Institute of Mining & Metallurgical Engineers, National Open Hearth Steel Committee: Fall meeting. Southern Ohio Section, Deshler-Wallick Hotel, Columbus, O.

October 3-5, Society of Industrial Designers: Annual meeting. Shawnee Inn, Shawnee-on-Delaware, Pa. Society address: 48 E. 49th St., New York 17. Secretary: Sally G. Swing.

October 6-7, Rail Steel Bar Association: Fall meeting. Hotel Cleveland, Cleveland. Association address: 38 S. Dearborn St., Chicago. Secretary: W. H. Jacobs.

October 6-10, National Hardware Show: Grand Central Palace, Atlantic City, N. J. Managing director: Frank Yeager.

October 9, American Iron & Steel Institute: Regional technical meeting. William Penn Hotel, Pittsburgh. Institute address: 350 Fifth Ave., New York 1. Meeting director: Frank Ragland.

October 11-14, National Association of Waste Material Dealers Inc.: Fall meeting, Los Angeles. Association address: 271 Madison Ave., New York. Secretary: Clinton M. White.

October 13-17, American Institute of Electrical Engineers: Fall general meeting. New Orleans, La. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

October 16-17, Gray Iron Founders' Society Inc.: Annual meeting. Hotel Cleveland, Cleveland. Society address: 210 National City-E. 6th St. Bldg., Cleveland. Secretary: Donald H. Workman.

October 16-18, Foundry Equipment Manufacturers Association: Annual meeting. The Greenbrier, White Sulphur Springs, W. Va. Association address: Engineers Bldg., Cleveland 14. Secretary: Arthur J. Tuscany.

October 18-19, American Society for Metals: Annual seminar. Benjamin Franklin Hotel, Philadelphia. Society address: 7301 Euclid Ave., Cleveland 3. Secretary: W. H. Eisenman.

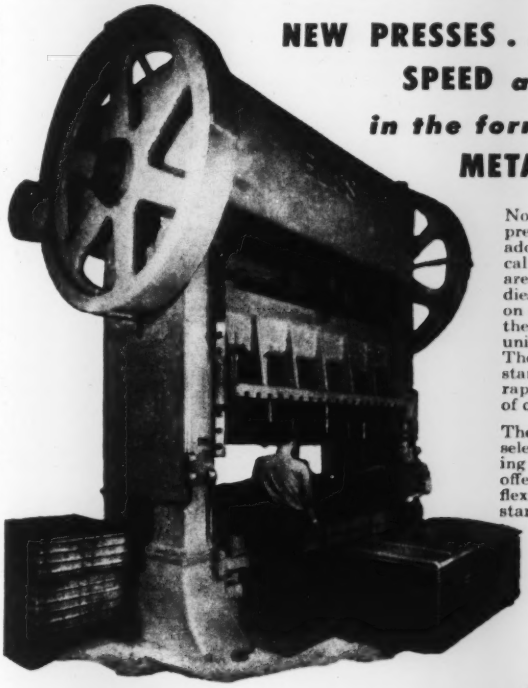
October 19-21, Conveyor Equipment Manufacturers Association: Annual meeting. The Greenbrier, White Sulphur Springs, W. Va. Association address: No. 1 Thomas Circle, Washington 5. Executive vice president: R. C. Sollenberger.

October 20-22, Packaging Institute: Annual meeting. Hotel Commodore, New York. Institute address: 342 Madison Ave., New York 17. Secretary: L. V. Burton.

October 20-24, American Society for Metals: Annual meeting. Benjamin Franklin Hotel, Philadelphia. Society address: 7301 Euclid Ave., Cleveland 3. Secretary: W. H. Eisenman.

LEAKE *Created** Metal Stampings

*RESEARCH • DESIGN • ENGINEERING
PRODUCTION / DIE MAKING • COMPLETE PRESS ROOM • MACHINE SHOP
HEAT TREATING • ALL TYPES BRAZING AND WELDING
TESTING AND INSPECTION

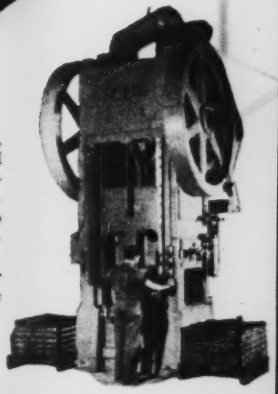


NEW PRESSES . . . *for greater* SPEED *and* ACCURACY *in the forming of* LARGE METAL STAMPINGS

Now, in addition to extensive press facilities, Leake has added two new Bliss mechanical presses. The large bed areas will accommodate big dies, or complete operations on smaller parts by mounting the dies to produce a complete unit with one press stroke. The presses are built to JIC standards in order to permit rapid economical adaptation of dies from other presses.

These presses were carefully selected to complement existing facilities, to be able to offer greater economy, and flexibility, to Leake metal stamping customers.

500 ton Bliss mechanical press; Bed area 120 in. by 60 in.; Stroke 20 in. Below: 250 ton Bliss mechanical press; Bed area 33 in. x 39 in.; Stroke 14 in.



The complete services, and extensive plant facilities, combine to make the Leake organization an unusual source for creative metal stampings in bare metal—primed—finish coated—porcelainized or plated parts. The Leake organization is fully prepared to fill your requirements. *Inquiries are invited. Write for further information, or send us your prints for quotation.*

MEMBER

Look to LEAKE for *unusual* metal stampings!

THE LEAKE STAMPING COMPANY
MONROE, MICHIGAN

Alliance 12-ton

OPEN HEARTH CHARGING MACHINE

● This photograph shows a new low-type 12-ton Alliance Charging Machine recently installed in one of the world's largest and most efficient steel producing plants.

This machine, designed and built by Alliance, world's largest builder of big cranes, has an unusually large number of exclusive new features that make charging operations easier and less costly.

For instance there's a —

Spring-loaded pitman that always keeps the trolley on the rails, providing ample traction for pushing scrap into the furnace and for the retraction of peel and box.

Box section bridge girder made of welded I-beams reinforced by diaphragms spaced at 3-ft. intervals.

Full length machinery deck plate located between the main and outrigger girders provides lateral stiffness and a safety platform for maintenance.

Stabilized, shock-absorbing wheels are held in contact with both upper and lower rails by means of springs, which reduces shock to the operator.

Four track-equalizer trucks, located at the corners on eight-wheel bridges, compensate for any irregularities in the track.

Finger-tip control provided by new type hydraulic lock rod.

All gears (including track wheel gears) are fully enclosed and run in oil.

These and many other Alliance features result in smoother overall plant operation.

Whenever it's a problem of handling heavy materials of any kind at your plant, contact Alliance . . . the world's most respected builder of big cranes.

THE Alliance MACHINE COMPANY

World's largest builders of world's largest cranes

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LADLE CRANES • GANTRY CRANES • FORGING MANIPULATORS • SOAKING PIT CRANES • STRIPPER CRANES • SLAB AND BILLET CHARGING MACHINES • OPEN HEARTH CHARGING MACHINES • SPECIAL MILL MACHINERY • STRUCTURAL FABRICATION

New Products and Equipment

SAFETY VISE FOR A VARIETY OF SETUPS
. . . speeds positioning of drill presses, band saws

Vise Speeds Production

USE REPLY CARD—CIRCLE No. 1

A new AMF safety vise that extends the usefulness of drill presses and band saws is announced by Float-Lock Corp., 511 Fifth Ave., New York, N. Y. It is a "full-floating" tool that can be used in a wide variety of setups in tool rooms and on production and assembly lines.

The drill press unit can be quickly locked in practically any position on the drill table to allow regular or angle drilling. It becomes a dependable jig when duplicate pieces are required, or repeat assembly operations needed. The vise turns over on three sides, and swings out of the way when not needed. Its capacity is 8 inches.

Band saw model, with 10-inch capacity, enables the operator to do all types of sawing without touching the material. It can be used in cutting vertical pieces, compound and simple angles, for irregular shaped, hard-to-hold pieces, and for automatic chain-feed operation.

REPLY CARDS

on page 153 will bring you more information on any new products and equipment in this section.

Low-Speed Worm Gear Motors

USE REPLY CARD—CIRCLE No. 2

Low-speed right-angle worm gear motors, called type GW Syncrogear, are introduced by U. S. Electrical Motors Inc., Box 2058, Los Angeles 54, Calif. The model incorporates a cantilever designed to protect gear alignment. Mounting stresses are absorbed by a single unit pyramidal base. Gear and motor housing are free from distortion. Splash lubrication, a hardened and ground worm, leakproof oil seal and asbestos-protected windings are other features.

Motor is built in speed ranges from 20 to 155 rpm and gear ratios up to 58:1. Horsepower ranges from $\frac{1}{4}$ to 3. Motor is made in both 3-phase and single phase.

Redesigned Coiler

USE REPLY CARD—CIRCLE No. 3

Hand-operated spring coiling machine for making compression, extension and torsion springs has been completely redesigned by Carlson Co., 277 Broadway, New York 7, N. Y.

New features are the structural steel baseplate, an improved method for cam adjustment and several others. Capacity is: Wire diameters from 0.004 to 0.063-inch with outside diameters up to 1 inch and spring lengths up to 4 inches. Arbors, wire cutters and extra coiling points are included.

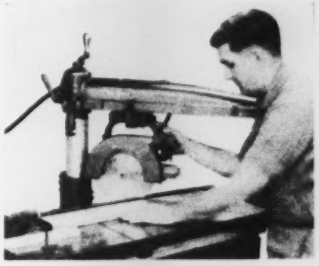
Metal Cutter Is Convertible

USE REPLY CARD—CIRCLE No. 4

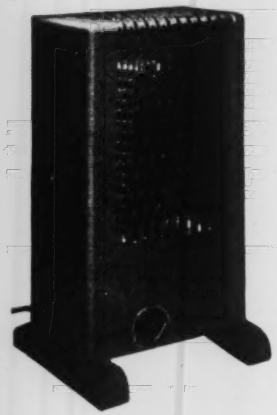
Does your operation involve fabrication of products of light metals? If much cutting is involved, here's a metal cutter that offers more versatility than one of a straight cutoff type. The 1 hp machine, developed by DeWalt Inc., subsidiary of American Machine & Foundry Co., Lancaster, Pa., not only makes straight cutoffs, but also miters, bevels and compound miter cuts in a matter of seconds.

The machine, referred to as the model GW, is a radial arm type. Changing from one cut to another takes only a few seconds—a matter of swinging the arm or motor to any angle for the type cut desired.

With metal cutting saw blades, the unit can be used for cutting



STRAIGHT CUTS OR ANGLES
. . . in a matter of seconds



Why not use Perforated Metal?

This Wesix Electric Heater shows a typical application of Hendrick Perforated Metal, combining utility and attractiveness. The heater guard is 20 gauge steel, with 3 16" x 1½" side stagger perforations.

With facilities for producing any required shape and size of perforations in any commercially rolled metals, Hendrick invites inquiries from manufacturers who may be considering the use of perforated metal in connection with any of their products.

SEE OUR CATALOG IN SWEET'S

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Manufacturing Company

30 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices In Principal Cities

Perforated Metals
Perforated Metal Screens
Wedge-Slot Screens
Architectural Grilles
Mitco Open Steel Flooring
Shur-Site Treads, Armorgrids

"New Process"

Punches • Dies • Rivet Sets
Compression Riveter Dies

Made to highest standards and uniform quality thus insuring maximum service— ***Since 1903***

Large inventory of stock sizes of round punches and dies also rivet sets available for immediate shipment. Square, rectangular, oblong and elliptical shapes made to order.

Write for catalog 46

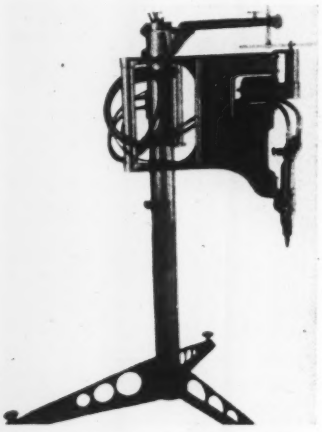
GEO. F. MARCHANT COMPANY
1420-34 So. ROCKWELL ST., CHICAGO 8, ILL.

aluminum and other nonferrous stock. By substituting abrasive wheels for the saw blades, it will cut light ferrous metals.

Torch Guiding Machine

USE REPLY CARD—CIRCLE No. 5

Oxyacetylene torch guiding machine, the Ultra-Graph, is introduced by Iver J. Esbenson Co., Merchandise Mart, 1845 Wazee St., Denver 2, Colo. Made for working in an unlimited class of parts, the guide automatically controls speed and path of torch travel. Strong



. . . controls torch travel automatically

permanent magnetic field provides positive attraction of power-driven friction rotor to the edge of a steel pattern. Ample speed control is provided for cutting material from 1/16-inch to 8 inches thick.

Machine handles fine detail work having tolerances as low as plus or minus 1/64-inch. Among the variety of complex pattern shapes that can be used are a 63-inch straight line, 32-inch diameter complete circle and a 76-inch diameter semicircle.

Platform Hand Truck Introduced

USE REPLY CARD—CIRCLE No. 6

Platform hand trucks used to carry loads ranging from 750 to 1500 pounds are announced by Fairbanks Co., 393 Lafayette St., New York 3, N. Y. Load capacity varies according to size and type of wheel employed. Platforms are made of oak reinforced with cross battens. Four sizes are standard:

JET BLACKS

Zinc plated typewriter key levers are a typical example of how the EBONOL "Z" process provides an adherent jet-black inorganic oxide finish to all types of zinc plated surfaces.

*Reg. Trade Mark

For blackening metals use ENTHONE EBONOLS

EBONOL "S" Processes for blackening steel to produce jet-black oxide coatings. Simple and economical to operate. Operating temperatures: EBONOL "S", 285-290°F., EBONOL "S-30", 295-305°F.

EBONOL "C" The quality black for copper and brass that meets all military specifications. Produces cupric oxide finishes that are stable, adherent and protective.

EBONOL "Z" A durable, deep, rich finish for zinc plate or zinc alloy castings. Dull or glossy oxide black coatings are formed in from 5 to 10 minutes at 160-180°F.

U. S. PATENT NOS. 2,364,993, 2,460,896, 2,460,898, 2,481,854.

Write to Enthone, Inc. for information and advice on any blackening process and ask for check list of Enthone literature on over sixty products and processes for better electroplating and metal finishing.

METAL FINISHING PROCESSES

ENTHONE

ELECTROPLATING CHEMICALS

442 ELM STREET
NEW HAVEN, CONNECTICUT

24 x 42, 27 x 48, 27 x 54 and 30 x 60 inches.

Handling ease is attributed to use of the company's Lockweld, double ball race, swivel casters. Trucks are available with one or two offset pipe racks and can be obtained with vulcanized rubber, solid rubber or semisteel wheels.

Dehydrates Air

USE REPLY CARD—CIRCLE No. 7

Improved air transformer is the new model HLD announced by De Vilbiss Co., 296 Phillips Ave., Toledo 1, O.

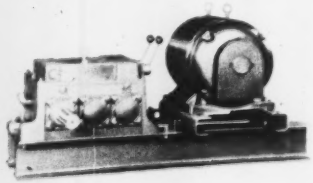
New transformer has a two-stage regulating principle which provides for easier adjustment of pressures, requiring only fingertip control of the adjusting knob. Moisture is eliminated by the transformer which traps the liquids and delivers clean air to all outlets. In tests 97 per cent of entrained water was removed from 100 cfm of air at 100 pounds pressure.

Unit has two regulated air outlets and two unregulated. It has a capacity of 100 cfm. Corrosion resisting metals are used in all parts of the condenser chamber.

Multi-Speed Transmission

USE REPLY CARD—CIRCLE No. 8

Here's a multi-speed transmission designed for heavier horsepower applications. It can be used to vary the turning speed of electrically-driven equipment or machinery; or installed in connection with internal-combustion engines where it is advantageous to run the engine at a constant speed and vary output speed.



. . . handles heavier hp machines

Developed by Turner Machinery Co., 3403 Terrace St., Kansas City 8, Mo. The transmission is made in three models in ratings up to 60 hp. Its versatility is increased by the availability to two different mounting brackets. One is a vertical arrangement that enables the motor to be mounted on a hinged plate over the transmission; the other, an H-beam mounting, enables the motor to be mounted in front or behind the transmission.

Machine Tests Parts at —80 F

USE REPLY CARD—CIRCLE No. 9

Compact industrial chilling machine made for testing procedures with temperature requirements of —10 to —80 F is available from Sub-Zero Products, Cincinnati 29, O. The model R-70 should be valuable in applications involving testing parts and instruments that must withstand effects of extreme cold.

Machine's chilling chamber is 30 x 18 x 33 inches, with more than 22 sq ft of freezing surface. Thermal capacity is 800 Btu per hour

at 70 F. Outside dimensions are 47 x 48 x 43 inches; weight, 950 pounds.

Heavy Duty Tachometer

USE REPLY CARD—CIRCLE No. 10

Measuring speeds of extruders, welders, kilns, conveyor belts, ovens, dryers and similar installations is the job performed by new heavy duty tachometer heads.

Built-in gearing permits direct engagement of very low speeds without need of speed changing drives. Speeds from a fraction of a revolution up to 199 rpm for full scale indication can be measured.

Head casting is anodized aluminum with ⅜-inch wall and heavy mounting feet to insure stability of initial alignment. All working parts and terminals are completely enclosed against dirt, abrasives and splashing liquids. Electrical connections can be up to 1000 feet or more and provision is made for using conduit or armored cable. Connections to the head can be made from any one of four approaches and the head can be mounted in any position.

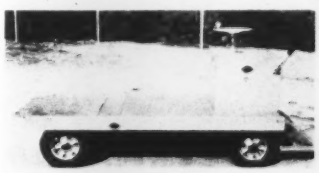
Manufacturer is Metron Instrument Co., 432 Lincoln St., Denver 9, Colo.

Truck Carries Long Objects

USE REPLY CARD—CIRCLE No. 11

Here's a truck designed to take on a variety of jobs in warehouses, factories, supply depots, docks, railway and truck terminals.

Developed by Consolidated Industries Inc., West Cheshire, Conn., it has 21 square feet of loading surface, removable stanchions that can be stowed in a rack under the platform, and room on each side of the engine housing for carrying long objects.



. . . 21 sq ft of loading space

The truck is chain driven by a 3.10 hp Briggs & Stratton engine, and its speed range may be varied by a choice of sprocket sizes. It also is equipped with an adapter for towing hand trucks.

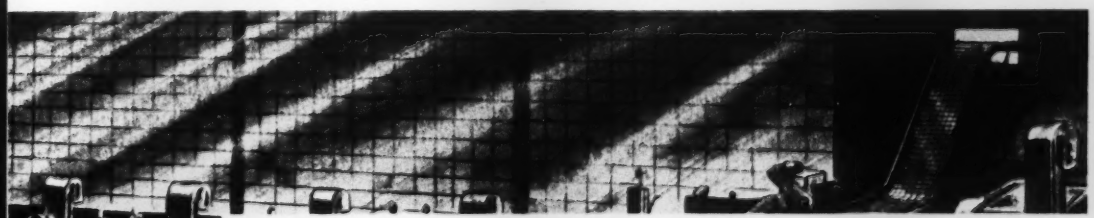
Easy to operate, the rubber-tired, 1-ton unit includes a safety device that brings it to an instant stop in case of operator failure.

Spraying Without a Compressor

USE REPLY CARD—CIRCLE No. 12

Trigger action combined with light weight makes the Champion all metal electric spray gun ideal for many industrial applications. New high speed electric pumping device delivers over 90 pounds of pressure at 7200 strokes per minute. No compressor is needed.

Gun can be used for spraying paints, lacquers, enamels, varnishes, chemicals, oils, insecticides and deodorants. It's a self-contained appliance made of stainless



. . . speed-up production

For full utilization of vital machinery and skilled manpower, mechanize your scrap handling. MAY-FRAN automatic systems increase production by eliminating machine downtime for scrap removal and end manual lifting and hauling.

Whether your scrap volume is large or small, MAY-FRAN can design and install an automatic handling system to meet your needs. Hot, wet or highly abrasive chips, turnings and borings can be removed continuously from operating machine tools by CHIP-TOTE conveyors and transported to disposal point on MAY-FRAN hinged-steel belting.

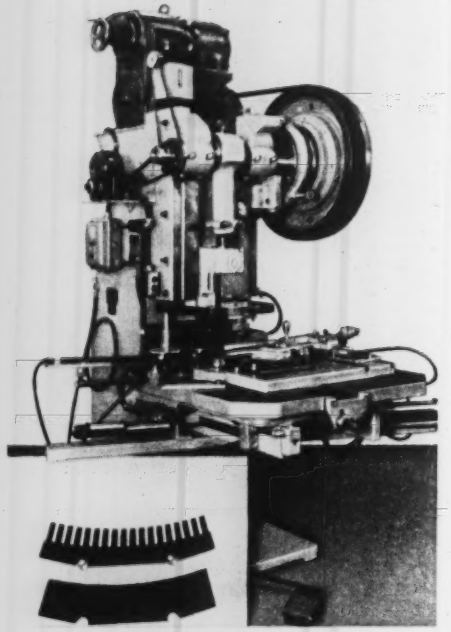
Leader in automatic scrap handling systems, MAY-FRAN has the technical skill and experience to solve your scrap handling problems. Write today for illustrated catalog.

490 MF

ENGINEERING, INCORPORATED

1725 CLARKSTONE ROAD • CLEVELAND 12, OHIO

New V & O Notching

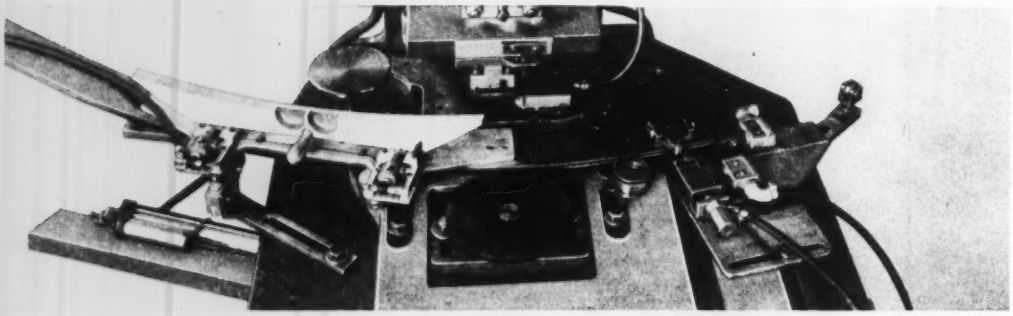


These new V & O machines consist of (1) a segmental notching press of advanced design and (2) a high speed notching press featuring a roller gear drive for more accurate indexing.

Both developments provide improvements that assure greater precision in spacing than has been available heretofore. This improved accuracy at the press cuts production costs and helps speed motor assembly. Slot alignment in stacked laminations is uniformly even, minimizing filing and drifting as operations and production expenses.

NEW V&O SEGMENTAL NOTCHER

Self-Indexing—No index segment).
Produces rotors or stators.
Semi-automatic—operator merely loads and unloads.
Slot spacing adjustable without tooling change.
Variable speed drive—control press speed to suit job.
Punch half slots or half poles without change in tooling.
Reduced set-up time.
Vernier adjustment for slot spacing.



Lamination blank is carried on an adaptor plate mounted on a master segment. Air cylinder moves the blank in circular path past the die.

OTHER EMHART PRODUCTS INCLUDE:

HIGH SPEED AUTOMATIC PRESSES
HENRY & WRIGHT
Division of Emhart Mfg. Co.
HARTFORD 5, CONNECTICUT

GLASS MAKING MACHINES
HARTFORD-EMPIRE CO.
Division of Emhart Mfg. Co.
HARTFORD 2, CONNECTICUT

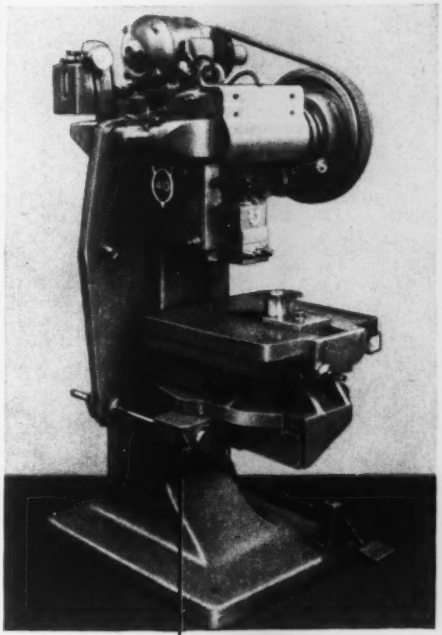
AUTOMATIC PACKAGING EQUIPMENT
STANDARD-KNAPP
Division of Emhart Mfg. Co.
PORTLAND, CONNECTICUT

PLASTIC BOTTLES, RODS, TUBES, SPECIAL SHAPES
PLAX CORPORATION
Subsidiary of Emhart Mfg. Co.
HARTFORD 1, CONNECTICUT

Presses *assure uniform, accurate spacing... slots always line up...filing minimized*

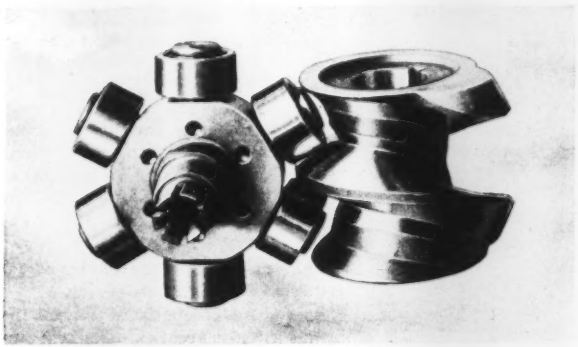
Other advantages of the new notchers are that they are easy to adjust for any notch combination, even prime numbers; require less downtime for changes and thus afford higher productivity over a given period of operation.

You know how much it costs now to produce and assemble laminations. These new notchers will help you realize substantial savings at the press and in subsequent production operations. Find out for yourself by getting the complete facts from V & O.



ROLLER GEAR NOTCHER

Unusually low maintenance — reduced hazards to dies.
Higher degree of precision.
Wider range of notch combinations with fewer set-up parts.
Precise, positive indexing.
Low inertia indexing — 50% lower than standard.
More production per machine.



Roller gear, showing spider and cam. Preload of bearings on cam results in positive dwell while punching.

Only the best is good enough

DESCRIPTIVE CATALOGS Catalogs containing complete specifications and operating details on V & O Precision Power Presses and Feeds are available. Please write The V & O Press Company, 381 Union Turnpike, Hudson, N. Y.

THE V & O PRESS COMPANY
Division of Emhart Mfg. Co.
BUILDERS OF PRECISION POWER PRESSES AND FEEDS SINCE 1889
HUDSON NEW YORK

Top production "in store" for the Grinding Department

SIMONDS ABRASIVE CO.

Grinding Wheels

More production per grinding wheel dollar! That's what's in store for YOU . . . at your Simonds Abrasive Company's distributor's.

He is part of Simonds distributor network reaching every major industrial center in the country. He knows your grinding operations and carries the wheels that meet your needs for speed, economy and top productive efficiency. And even if your jobs are highly specialized requiring special wheels, he'll arrange to have a Simonds engineer survey your operations. No cost to you.

Let us send you the name of your Simonds distributor, together with our grinding wheel data book. Write.

SIMONDS ABRASIVE CO. PHILADELPHIA 37, PA. BRANCH WAREHOUSES: CHICAGO, DETROIT, BOSTON
DISTRIBUTORS IN PRINCIPAL CITIES

Division of Simonds Saw and Steel Co., Fitchburg, Mass. Other Simonds Companies: Simonds Steel Mills, Lockport, N. Y., Simonds Canada Saw Co., Ltd., Montreal, Que. and Simonds Canada Abrasive Co., Ltd., Arvida, Que.

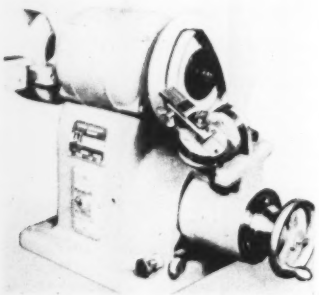
steel with sturdy vibrator motor in the handle. It uses alternating current, 110-v light socket. Unit is manufactured by Champion Implement Corp., 45 W. 45th St., New York, N. Y.

Machine Sharpens Chasers

USE REPLY CARD—CIRCLE No. 13

Here's a machine that allows you to free heavy expensive machine tools for their intended uses and at the same time does a better job of chaser sharpening.

The new chaser sharpening machine, reported by Jones & Lamson Machine Co., Springfield, Vt., is simple to operate—an inexperienced operator can learn to sharpen chasers in a few minutes. A precision machine, it will duplicate desired grinds repeatedly.



. . . *duplicates grinds repeatedly*

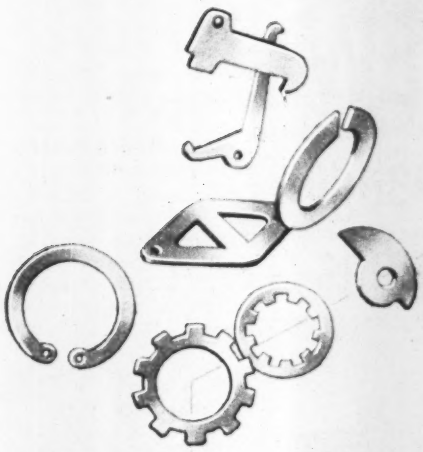
The machine is equipped with a new chaser and grinding fixture and adapters. Adapters other than those of J & L's can easily be applied to the grinding fixture. Bench space occupied by the unit is 14 x 28 inches.

Extension Handles Long Loads

USE REPLY CARD—CIRCLE No. 14

Unusually long loads can be handled with greater ease and increased safety through use of a fork extension, made as a standard accessory by Towmotor Corp., 1226 E. 152nd St., Cleveland 10, O., for their lift trucks.

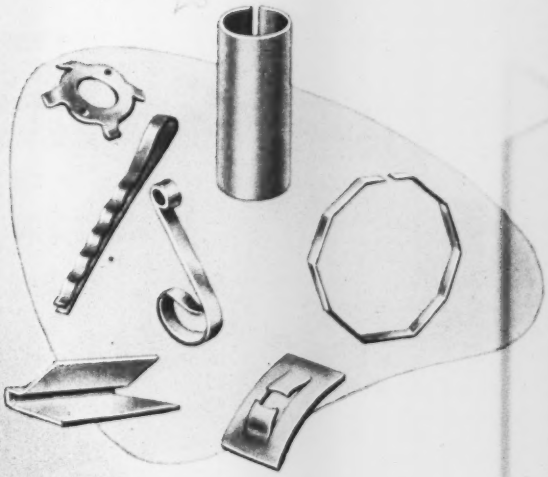
Made to increase safety in handling such loads as steel sheets, skids and boxes too long for usual treatment, the extensions can be removed quickly and easily. The truck retains its standard maneuverability in handling work requir-



PEARLITIC—Temper-rolled in controlled hardness and strength for blanking.

SPHEROIDIZED—Annealed, soft and ductile—ideal for cold forming operations.

for blanking
...or forming



it's easier when you use **WEIRTON**

HIGH-CARBON STRIP
COLD-ROLLED SPRING STEEL

Either for blanking or for forming, there is a Weirton cold-rolled spring steel having special qualities and properties that make the operation easier to perform and make the manufactured product better. You will always get consistent results, too—because Weirton's close control over every step of manufacture assures constant uniformity.

You can count on Weirton High-Carbon Strip cold-rolled spring steel . . . for accurate response to heat treatment—uniformity of gauge and width—uniform chemical and physical properties—exact constancy of grain structure—controlled decarburization limits.

Weirton High-Carbon Strip is obtainable with the desired chemical analysis and for specific heat treating and hardness ranges, in widths up to seven inches.

WEIRTON STEEL COMPANY
WEIRTON, WEST VIRGINIA

NATIONAL STEEL CORPORATION

AT YOUR SERVICE 2 NEW Shenango bulletins

. . . on symmetrical or annular parts, ferrous and non-ferrous

IF your plans call for bushings, liners, sleeves, rings, rolls, or *any* essentially symmetrical shape, find out about the many advantages you stand to gain with Shenango centrifugally cast parts.

BULLETIN NO. 150 covers non-ferrous parts in manganese and aluminum bronzes, red bronzes, brass, Monel Metal and special alloys.

BULLETIN NO. 151 covers parts of Meehanite Metal, Ni-Resist and special iron alloys.

These new bulletins show typical Shenango produced parts that are saving time, trouble and cost in industries everywhere. Get the facts. Either or both bulletins are yours for the asking.

SHENANGO-PENN MOLD COMPANY
Centrifugal Castings Division
Dover, Ohio
Executive Offices: Pittsburgh, Pa.

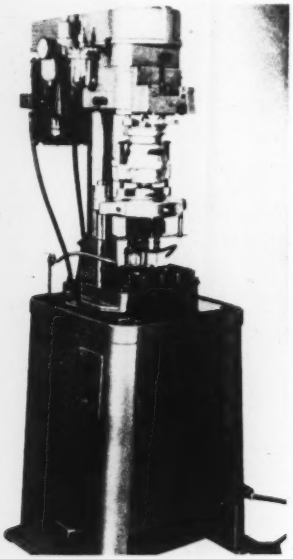
SHENANGO
ALL RED BRONZES • MANGANESE BRONZES • ALUMINUM BRONZES
MONEL METAL • NI-RESIST • MEEHANITE® METAL

ing regular fork lengths. Locking feature on the extensions prevents movement forward or backward over the regular forks; side flanges hold them in place laterally.

Tapping, Drilling Machine

USE REPLY CARD—CIRCLE No. 15

Wide range of drilling and tapping requirements is handled at high production rates by a new electric air-controlled tapping and drilling machine developed by Ettco Tool Co. Inc., 594 Johnson Ave., Brooklyn 37, N. Y. It is designed for use with either multiple or single spindle drilling and tapping heads, and takes interchangeable work holders.



. . . drills at high speed

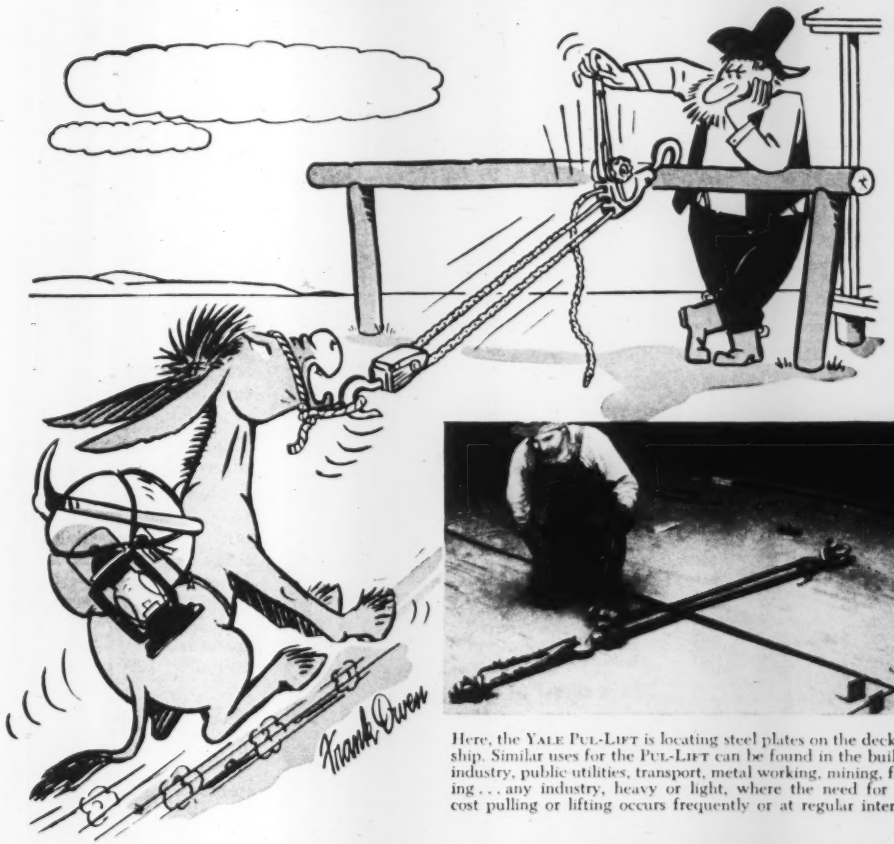
Feature of the machine is an electrically controlled four-way air valve with a built-in up-and-down speed control. The No. 74 machine can be run on a continuous automatic cycle or single stroke operation, controlled by foot or hand.

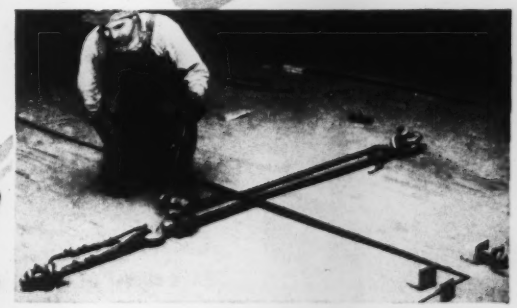
Lift Has 6-Inch Swivel Casters

USE REPLY CARD—CIRCLE No. 16

Heavy loads are eased over rough, uneven floors by the model 14S hydraulic lift made by Big Joe Mfg. Co., 184 N. Franklin St., Chicago 6, Ill. The platform lift

There's a YALE hoist for every lifting need!





Here, the YALE PUL-LIFT is locating steel plates on the deck of a ship. Similar uses for the PUL-LIFT can be found in the building industry, public utilities, transport, metal working, mining, farming . . . any industry, heavy or light, where the need for low-cost pulling or lifting occurs frequently or at regular intervals.

Industries of all types solve thousands and thousands of difficult *lifting* and *pulling* problems with the YALE PUL-LIFT. Universal ratchet action makes it as easy to use as a wrench . . . light weight means one-man operation . . . exclusive YALE design provides capacities of up to 15 tons. Yes, your business can realize important savings in time, money and manpower by applying the YALE PUL-LIFT to countless maintenance and construction operations. CALL YOUR LOCAL YALE INDUSTRIAL DISTRIBUTOR FOR COMPLETE INFORMATION . . . he's listed in the classified pages of your local phone directory under the heading Hoists, Industrial.

MAIL THIS COUPON TODAY

The YALE & TOWNE Mfg. Co., Dept. 89
Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

I'm interested in lifting for less with a YALE Hoist.
☐ Please have your local Hoist Distributor call on me.
Please send detailed literature on:
☐ YALE Pul-Lifts. ☐ YALE Hand Hoists. ☐ YALE Electric Hoists.

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Name _____ Title _____
Street _____ City _____ State _____
In Canada write The Yale & Towne Manufacturing Co., St. Catharines, Ont.

YALE
PUL-LIFTS
SOLD ONLY THROUGH INDUSTRIAL DISTRIBUTORS

YALE is a registered trade mark of The Yale & Towne Mfg. Co.

The Yale & Towne Manufacturing Co., Phila 15, Pa.

Yale Gas and Electric Industrial Trucks • Yale *Worksavers* • Yale Hand Trucks • Yale Hand and Electric Hoists • Yale Pul-Lifts

STANDARD TOOL
ON SPECIAL JOB
Reduces TOOL COSTS 65%

Here's what happened during an inside threading operation at an atomic special project. A special carbide cutting tool was being used for the job, which requires a No. 10 Acme thread in steel S. A. E. 1030. Everything went wrong, however. Tools were breaking, and the result was not one piece was completed.

Mr. Howard G. Frisby, Jr., representative of Choctaw, Inc., Memphis, came to the rescue. He furnished a Wendt-Sonis standard AR style carbide tool bit, turned it up sideways and reground it on the job. Breakage was eliminated, the job finished and tool costs reduced 65%.

YOUR CHOICE OF CARBIDE

When you choose Wendt-Sonis, you select the brand and type of carbide you want. You also select from a complete range of Wendt-Sonis standard tool sizes. All Wendt-Sonis carbide-tipped tools have rust-resistant tool shanks made from highest quality steels for greater economy and faster production.

***Free!* CHIP BREAKER CHART**

Contains illustrations of chip-breakers, grinding instructions and recommendations for their use. Chart size with tab for wall hanging. Write: WENDT-SONIS COMPANY, Hannibal Mo.

WENDT SONIS

HANNIBAL, MISSOURI

580 N. Prairie Ave., Hawthorne, Calif.

549 West Randolph St. Chicago, Ill.

CARBIDE-TIPPED CUTTING TOOLS

BORING TOOLS • CENTERS • COUNTERBORES • SPOTFACERS • CUT-OFF TOOLS • DRILLS • END MILLS • FLY CUTTERS • TOOL BITS • MILLING CUTTERS • REAMERS • ROLLER TURNING TOOLS • SPECIAL TOOLS

is equipped with heavy-duty, dual ball bearing, 6-inch diameter swivel casters that should facilitate movement over rough surfaces. Loads up to 750 pounds are raised or lowered by simple pedal pressure.

Truck has 10-inch solid rubber wheels and positive locking safety brakes. It supplements the model 14, made with smaller 3-inch casters.

Dual Purpose Oil

USE REPLY CARD—CIRCLE No. 17

Texas Co., New York, N. Y., has developed a dual-purpose preservative oil to protect internal combustion engines in storage or shipment. Produced in two grades, Texaco preservative oil 10 and 30, functions both as a lubricant and preservative. It is also useful in other internal combustion engines in intermittent service.

Flexible Plastic Tubing

USE REPLY CARD—CIRCLE No. 18

Tygon flexible plastic tubing with triple wire, stainless steel outer braid is available from U. S. Stoneware Co., Akron, O. With braided stainless steel reinforcement, tubing absorbs vibration and does not crack, leak or break under working pressures up to and including 300 psi.

Ball Bearing Idler Rollers

USE REPLY CARD—CIRCLE No. 19

Crown faced idler rollers with precison type radial and thrust ball bearings are available from Samuel Olson Mfg. Co., Chicago 47, Ill. Bearings are protected by felt and metallic seals and can be lubricated through ends of the shafts. Rollers are made in $2^{5}/_{8}$ and $4^{1}/_{4}$-inch diameters and widths to specifications.

Electronic Timer

USE REPLY CARD—CIRCLE No. 20

General Control Co., Boston 34, Mass., has developed a Promatic electronic timer capable of controlling timed operations between 60 milliseconds and 60 seconds. Time period is set manually by an indicator and a $3^{3}/_{8}$-inch dial. Timing commences upon closure of any external switch; control contacts

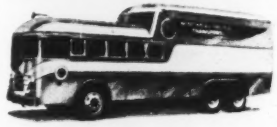
IN ALL INDUSTRIES

LUBRIPLATE LUBRICANTS

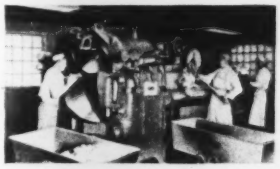
EXCEL IN REDUCING FRICTION, WEAR, UPKEEP-COSTS AND POWER-CONSUMPTION... WITH BETTER MACHINE PERFORMANCE

"THIS LUBRICANT CUT OUR PARTS REPLACEMENT 50%"

– says NORTHERN PACIFIC TRANSPORTATION COMPANY



"LUBRIPLATE proved so satisfactory during tests that we installed it in all our worm-gear, hypoid, and two speed axles. This enabled us to change our oil-change period from 15,000 miles to 40,000 and on some applications, depending on speeds and temperatures encountered, we raised the change period to 60,000 miles, or approximately once a year. Our overhaul periods were stretched from 50,000 to 100,000 miles, and repair parts bill cut 50% with the increased mileage."



THE GLOBE COMPANY says:

"THIS LUBRICANT INCREASED BEARING LIFE FROM 2 WEEKS TO 2 YEARS"

"After we had quite a few of our large high speed ROTO-CUT meat cutting machines in actual production operation, the ball and spherical roller bearings on the cutter shaft gave us serious trouble due to a condition that prevails throughout the meat packing industry, animal acids and moisture. Some bearings did not last even two weeks. Then, BALL BEARING LUBRIPLATE was called to our attention. The result: these machines lubricated with BALL BEARING LUBRIPLATE have been in continuous operation for over two years without a single bearing replacement.

The Globe Company
Frank J. Bilek (Chief Engineer)

"THIS LUBRICANT kept 'em rolling in mud, muck and water"

– says J. O. ARCHIBALD of Redwood City, California

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either open or close at end of timing, depending on circuit requirements.

Injection Nozzle Puller

USE REPLY CARD—CIRCLE No. 21

Owatonna Tool Co., Owatonna, Minn., offers a puller for removing the fuel injection nozzle from the cylinder head on all International Harvester diesel engines. Tool is adjustable and may be used for other pulling jobs.

All Steel Pillow Blocks

USE REPLY CARD—CIRCLE No. 22

All steel pillow blocks providing high load-carrying capacity are introduced by Dodge Mfg. Corp., Mishawaka, Ind. Bearings are fully self-aligning with spherical outer race. They are available in both expansion and nonexpansion types. Double piston ring seals keep lubricant in and dirt out.

Screw Pump

USE REPLY CARD—CIRCLE No. 23

An internal gear and bearing type screw pump for positive displacement of lubricating fluids or semifluids is announced by Sier-Bath Gear & Pump Co. Inc., N. Bergen, N. J. Capacities range from 1 to 700 gpm and discharge pressures are 1000 psi for viscous liquids and 500 psi for light oils.

Tapping Chuck

USE REPLY CARD—CIRCLE No. 24

Finger tip control tapping chuck, introduced by Commander Mfg. Co., Chicago, Ill., is designed for use with the company's tapper. Chuck permits maximum use of tapper's spring clutch drive and adjustable torque control features.

BX Armored Cable

USE REPLY CARD—CIRCLE No. 25

An improvement in BX armored cable is announced by General Electric's Construction Materials

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Just circle the corresponding number of any item in this section for more information.

Yours FOR THE ASKING

TEAR OUT CARD, FILL IN and MAIL TODAY!

70. Temperature Controls

Burling Instrument Co.—12-page illustrated bulletin G-17 deals with vapor-tight electric and pneumatic controls for temperatures in range of —300 to 1800° F. Also described are various models of temperature controlled valves.

71. Precision Stencil Marking

Jas. H. Matthews & Co.—Two illustrated 4-page folders "WOW" and "Any Questions" show how Precision stencils are used to mark or lable electronic equipment chassis and parts by simple spray technique. Precision stencils are made flat or shaped to fit snugly over part to be marked. Any choice of letters, numbers, symbols or markings can be employed for guidance in assembling, servicing or operating.

72. Handling Simplified

Hyster Co.—Attachments, tools and accessories designed to lower costs and increase ease of handling materials with Hyster industrial power trucks are described in illustrated 24-page brochure. Action pictures and explanatory text serve to explain the advantages that are offered.

73. Helical Gear Drives

Foote Bros. Gear & Machine Corp.—Design features, specifications, load characteristics, service factors, ratings and selection aids are included in this 12-page engineering manual LPB, on Line-O-Power straight line helical gear drives. Much information is in table form.

74. Packing Guidance

United States Steel Co., Gerrard Steel Strapping Div.—24-page illustrated "Blue Book of Packaging" describes reinforced parcels, bundles, boxes, crates and carloading. Use of manual and automatic strapping machines which produce up to 15 ties or closures per minute is explained. Also covered are auxiliary round steel strapping equipment such as trucks, machine suspensions, cutting tools, corner clips and other supplies.

75. Cleaning Metal

E. F. Houghton & Co. — "Metal Cleaners" is title of 6-page folder which deals with metal cleaning techniques and giving data on concentrations of alkaline, emulsion, acid phosphate and surface active agent types. Recommended uses of each type are listed.

76. Stacking & Loading Boxes

Hinde & Dauch Paper Co.—"How To Stack & Load Corrugated Shipping Boxes" is title of No. 2 booklet in the Little Packaging Library. Its 12 illustrated pages tell you how to decrease damage, save time and space, and estimate space requirements. It outlines the techniques of loading and stacking along with definite "tricks of the trade."

77. Band & Hack Saws

Henry G. Thompson & Son Co.—Two illustrated 6-page folders give selection and application data on Milford Resistor hack and band saw blades. Sizes, ordering data and other information are given on several blades types.

78. Nonferrous Tubing

Fromson Orban Co.—What company can supply in line of copper, brass and aluminum tubing in all commercial sizes and shapes is related in 4-page illustrated folder. Other forms include nonferrous and bimetal foil, wire, rod, strip and sheet.

9-8-52

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79. Babbitting Practice

American Smelting & Refining Co., Federated Metals Div.—Basic steps for the prevention of common bearing failures are outlined in this 12-page booklet No. 146 "Hints on Babbitting Practice." It covers everything from choice of metal for a particular application through the correct pouring practice.

80. Welding & Safety Equipment

Fibre-Metal Products Co.—44-page illustrated catalog No. 24 shows diversified line of welding helmets, hand shields, electrode holders, weld cleaning hammers, Scratchmaster brushes, a weld testing machine, protective clothing and welding cable. Goggles, masks, cover glass and other items also are covered.

81. Automatic Gaging & Sorting

Federal Products Corp.—"High-Speed Automatic Gaging & Sorting" is a 20-page illustrated bulletin which describes the various types of automatic gaging methods and gages designed and built by this company. Continuous measuring gages are covered. All employ electromechanical and electronic systems.

82. Surface Hardening

Lindberg Steel Treating Co.—Malcomizing, a process for surface hardening of stainless steels, is subject of 24-page illustrated guide book. Case histories, corrosion resistance, case depths, wear resistance and advantages of Malcomizing are outlined.

83. Steel Strapping Uses

Signode Steel Strapping Co.—Steel strapping, seals, tools, accessories and applications are covered by 40-page illustrated catalog 15. Selected case histories are cited on specific uses of steel strapping in many of the more than 700 industries served by this company. Reference data are given on packaging, car doorway protection, freight bracing and automatic power strapping machines.

84. Progress in Hydraulics

Hydraulic Press Mfg. Co.—"It Started With an Apple" is provocative title of 32-page illustrated 75th Anniversary bulletin which traces development of this company from its founding as a maker of hydraulic cider presses to its present-day operations which include manufacturing huge presses which are over four stories high. Typical machines and equipment and the personnel and facilities which make them are described.

85. Flow Meter

Fischer & Porter Co.—Variable-area flow meters with tapered metal metering tubes are described and illustrated in 12-page catalog 40. Armored Flowrator meters are designed for both high temperature and high pressure and for use where liquid hammer and hazardous fluids are present. Operating details and specifications are included, along with section on meter extensions and combinations.

86. Brass & Copper Tubing

H & H Tube & Mfg. Co.—Illustrations and brief descriptions relative to types of brass and copper tubing and fabricated parts for use in automotive, heating, air conditioning, plumbing and refrigeration fields are presented in 4-page folder.

EDITORIAL REPRINTS:

87. Lift Truck Handling

As production demands increase, many plants discover their layout is a materials handling nightmare. How Bridgeport Brass Co. 'pulled itself together' to handle a variety of materials in and about a group of non-integrated departments is the story in STEEL reprint, "Lift Trucks Knit Nonintegrated Plant."

88. Coated Abrasives

Growth of metal finishing applications using coated abrasives is one of the most significant developments in modern metalworking, relates R. E. Hall, Pittsburgh editor in STEEL special report, "Coated Abrasives Grind Down Costs." In describing this growth, author discusses various type belts, precision grinding, high belt speeds, electrostatic belt coating, function of backstand idler, contour cutting special shapes and what grits to use.

89. Aircraft Skin Machining

"Tapered Aircraft Skins Machined" is title of brief STEEL reprint which describes a new machining technique using coated abrasives. Process involves use of modified Hill Acme belt machine plus a "61" rubber-faced contact roll of Carborundum. Cuts up to 0.1-in. deep can be taken over sheet widths up to 72 in.

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7	17	27	37	47	57	67	77	87
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Division, Bridgeport 2, Conn. Sizes 14 to 10 Awg of this cable will utilize a glass braid instead of a cotton one. Glass braid, which is inorganic, will not rot, is flameproof and makes possible a smaller overall diameter of the cable.

Head Cutter for Drums, Cans

USE REPLY CARD—CIRCLE No. 26

Model 600 head cutter, introduced by Michael A. Schinker Mfg. Co., Chicago 36, Ill., is designed to cut out tops or heads of carbide, caustic, soda, cyanide, tar, resin, pitch, flake and other drums and cans of 24 to 30 gage steel. The lightweight, hand-operated device leaves the container with a turned-in flange.

Linear Ball Bearing

USE REPLY CARD—CIRCLE No. 27

Linear ball bearing for use on $2\frac{1}{2}$-inch diameter shafts is available from Thomson Industries Inc., Manhasset, N. Y. It is suitable for heavy load applications or where extreme rigidity requirements dictate use of heavy supporting shafts.

Soldering Iron

USE REPLY CARD—CIRCLE No. 28

Hexacon Electric Co., Roselle Park, N. J., announces a soldering iron for pinpoint accuracy on precision soldering. It weighs 3 ounces (less cord), has a $\frac{1}{8}$-inch diameter tip and is rated at 25 w. It is available for 110 or 220 v, dc or ac, any cycle.

No Porosity in Welding

USE REPLY CARD—CIRCLE No. 29

Spekaluminite Co., Ossining, N. Y., announces Weldaluminite, a fusing agent and deporosite that extends application of inert arc welding to rimmed steel producing welds free from porosity. It is either sprayed or brushed on the joint to be welded and allowed to dry before welding is begun.

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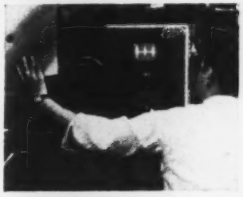
Just circle the corresponding number of any item in this section for more information.

THROUGHOUT INDUSTRY

Reflectoscope testing during manufacture guards against internal flaws or cracks in this injection mold die assuring complete dependability.

Reflectoscope testing prior to machining eliminates wasted time and loss of materials resulting from faulty metal.



Testing this large finished die assures freedom from internal defect and possible failure-in-use.

Assure CUSTOMER SATISFACTION

Eliminate WASTE • REJECTS

WITH Sperry

ULTRASONIC TESTING

The Chicago Impression Die Company — makers of plastic injection mold dies — is one of the many firms throughout industry that has found two important benefits from Sperry Ultrasonic Reflectoscope testing.

First — Testing of raw materials before processing eliminates the many man- and machine-hours that are wasted when hidden flaws or inclusions are discovered during manufacture. Second — Reflectoscope testing the finished products assures that no flaws have developed that might cause failure in use. Customer acceptance and satisfaction is assured.

Simple, economical and effective in operation, the Reflectoscope penetrates up to 30 feet in solid metal with an ultrasonic beam that dependably detects and locates hidden internal flaws, defects and inclusions.

Write today for complete information; learn how you can reduce testing costs and improve quality control in your plant. The Sperry Reflectoscope is available through Sperry's convenient, economical, in-plant Testing Service, conducted by Sperry's experienced Inspection Engineers. Ask for details concerning sale or rental of the Sperry Ultrasonic Reflectoscope.

Sperry

SPERRY PRODUCTS, INC.

609 SHELTER ROCK ROAD

Danbury, Connecticut

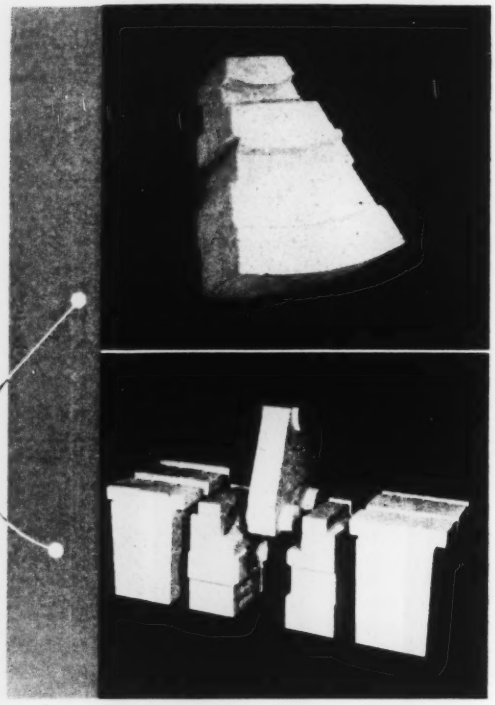
REPRESENTATIVES IN PRINCIPAL CITIES

1000 to 1300 Heats

at ¼ the cost

with LACO "600" Special Refractory

PE 84 nose tile made of LACO "600" special refractory



Tile components, Laclede tile suspended arch

Records up to 1340 heats on Noses and Fan Tails have been reported by large Eastern steel mills using LACO "600" special refractory in Open Hearths and in hot zones of Slab Heating Furnaces.

Now proven in performance, LACO "600" was field tested for over ten years in advanced Open Hearth designs on new furnaces and rebuilds. *Of 28 furnaces equipped by Laclede Arch Company in the last two years*, ranging in size from 165 tons capacity to 275 tons capacity, most are utilizing LACO "600" on fan tails, noses, chill walls, or burner arches.

LACO "600" cuts heat losses, keeps maintenance expenses down, costs less to install and has long service life, improves furnace operation, reduces air infiltration, saves *time* and money. **It costs one-quarter as much as expensive chrome and magnesite brick sometimes used in Fan Tail and Nose construction.**

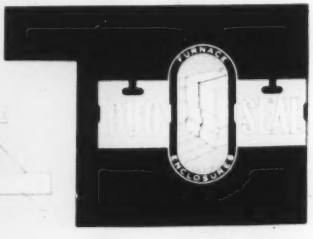
Yes, these locations have tough operating conditions, but LACO "600" special refractory meets these conditions with service and economy. Why does a clay brick costing so little perform so well?

The answer, backed up by ten years of field tests, lies in the unique combination of refractory properties, high resistance to spalling, excellent volume stability, high melting point, uniformity, **plus the method of suspension.** All of this adds up to *increased furnace availability at the right price.*

Let's go **downstairs** to cut costs and step up production and furnace availability with *Suspended* LACO "600".

Every type of refractory or suspension has its proper economical place.

Let us show you some designs and performance records.



Laclede Arch Company

Division of Laclede-Christy Company

1705 Mallers Building, 5 S. Wabash Avenue • Chicago 3, Ill.

Telephone: Andover 3-6255

Branch Offices: Pittsburgh • New York • St. Louis • San Francisco

The Market Outlook

EXTENT to which the recent average steel price increase of 4.7 per cent will pass through to finished end-products, especially consumer durable goods, remains in the realm of speculation. Such pass-through is sanctioned by government economic control authorities. But it is not certain manufacturers generally will avail themselves, immediately or fully, of the opportunity to bring selling prices in line with increased costs. That they would like to do so is unquestioned. However, prudent marketing policy cautions against hasty action.

QUANDARY— Impact of the steel increase on manufacturing costs remains to be fully determined. Adjustments have not been fully completed yet in steel product price listings and won't be until the effect of increased wages on production costs can be more accurately determined. Then, also, metalworking wages appear headed upward on the tail of the steel strike. What will such do to manufacturing costs? Until effect of these cost factors, as well as other imponderables in the present confused situation, can be clearly assessed, a definite and conclusive stand on finished goods prices at this stage would appear premature. And to cap it all, can manufacturers pass along their cost increases to any extent at present without discouraging demand?

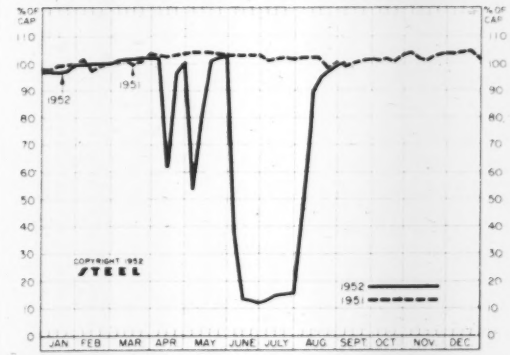
STEEL PRICES— Most producers have now established finished steel product prices at the new ceiling levels. In some instances action remains to be taken on various products, but, in the main, major adjustments have been completed. STEEL's weighted index on finished steel now stands at 181.40. Effective Sept. 4, retroactive on shipments on and after July 26, ceiling prices on pig iron containing less than 5 per cent silicon were increased $2.50 per ton, and on iron running more than 5 to 17 per cent silicon, $3 per ton.

SUPPLY— While steel production is hovering around theoretical capacity, over-all balance between supply and demand is unlikely before first quarter of next year at earliest. Plates, bars and possibly structural shapes are expected to be in tight supply throughout first quarter 1953. Despite progress on arrearages in top-rated military requirements, still more defense work is developing at an accelerated pace, which, along with warehouse and special directives, as well as a setback of around three months in nondefense shipments, warns of stringency in these products for weeks to come. On the other hand, certain light, flat-rolled items and some wire goods should be readily available before yearend. Nails and wire rope can be had now without too much difficulty. Some wire products sellers think they may be looking for customers as early as November.

HOPING— At this point in the recovery from the two-month steel strike, a recovery which has been gratifying and surprisingly rapid, about the best that can be said for steel supply in the immediate future is that the steelmakers are hoping there will be a more favorable situation before end of the year. They are not expressing this hope to customers, however, especially those consumers still awaiting shipments that had been scheduled for delivery last June. General opinion is that it will be first quarter before supply conditions, over-all, ease appreciably with unrated fourth quarter 1952 orders being accepted only with the understanding shipments will be made in January or February of 1953. Some steelmakers feel while there are still no concrete signs of easier supply over the next few months, current military set-asides appear too large for early consumption and may result in some readjustments in scheduling before long. When the situation in this respect is readjusted realistically, they say, it won't take long for the steel mills to catch up with civilian goods makers' demands.

PRODUCTION— The steel mills operated at 100 per cent of capacity last week for the first time since the end of last May. Production can be lifted several points above the Jan. 1, 1952 theoretical capacity since additional steelmaking facilities have gone into production over recent months.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

Percentage of Capacity Engaged at Leading Production Points

	Week Ended Sept 6	Change	Same Week 1951	Same Week 1950
Pittsburgh	99	+ 1*	97.5	101.5
Chicago	100	— 1	104.5	100.5
Mid-Atlantic	97	+ 2	98	98.5
Youngstown	106	0	98	103
Wheeling	95	+ 0.5	96.5	95
Cleveland	105.5	+ 1	100.5	94.5
Buffalo	104.5	0	104	104
Birmingham	100	0	100	100
New England	90	— 2	85	65
Cincinnati	90	0*	103	103
St. Louis	76	14	81	78
Detroit	104	— 2	96	108
Western	103	— 4	102	106
Estimated national rate	100	+ 1.5	99	98.5

Based on weekly steelmaking capacity of 2,007,040 tons in 1952; 1,999,034 tons for 1951; 1,928,721 tons for second half, 1950; 1,906,268 tons for first half, 1950.

* Change from revised rate for preceding week.

The Metalworking Outlook—p. 49 Production-Engineering News—p. 85

Composite Market Averages

FINISHED STEEL PRICE INDEX Bureau of Labor Statistics	Sept. 2 1952	Aug. 28 1952	Month Ago	July Average
(1947-1949=100)	130.8	130.8	130.9	124.4

AVERAGE PRICES (BUREAU OF LABOR STATISTICS)
Week Ended Sept. 2, 1952

Units are lb (lb exp) where otherwise noted below in parentheses. For complete description of products see issue following p. 28, STEEL.

Sept. 2, 1952			
Basic	$4.775	Sheets, C.R. carbon	$5.275
Track spikes	6.500	Sheets, galv.	6.975
Track bolts	9.850	Strip, C.R. carbon	5.100
Tie plates	4.775	Strip, C.R. stainless (lb)	0.325
Joint bars	4.925	Pipe, black, buttweld (100 ft)	7.000
Plates, carbon	4.150	Pipe, galv. buttweld (100 ft)	9.100
Structural shapes	4.200	Boiler tubes (100 ft)	31.500
Bars, tool steel (lb)	1.525	Tin plate (100 lb base box)	8.500
Bars, 4120 alloy	6.575	Terne plate (100 lb base box)	7.750
Bars, stainless (lb)	0.440	Wire, carbon, merchant	6.075
Bars, carbon	4.100	Wire, fence, galv.	6.500
Bars, reinforcing	4.050	Nails (100 lb keg)	7.350
Bars, C.F. carbon	5.925	Wire, barbed (80 rod spools)	5.960
Sheets, H.R. carbon	4.125	Woven wire fence (20 rod rolls)	13.810

FINISHED STEEL PRICE INDEX, Weighted Calculated by STEEL*	Sept. 4 1952	Week Ago	Month Ago	Year Ago	5 Yrs Ago
Index (1935-39 av. = 100)	181.40	181.40	181.40	171.92	120.39
Index in cents per lb	4.914	4.914	4.914	4.657	3.261

ARITHMETICAL PRICE COMPOSITES Calculated by STEEL*					
Finished Steel, NT	$111.66	$111.66	$111.66	$106.32	$75.41
No. 2 Fdry. Pig Iron, GT	52.54	52.54	52.54	52.54	36.50
Basic Pig Iron, GT	52.16	52.16	52.16	52.16	36.29
Malleable Pig Iron, GT	53.27	53.27	53.27	53.27	37.13
Steelmaking Scrap, GT	43.00	43.00	43.00	44.00	37.81

* For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composites, STEEL, Sept. 1, 1952, p. 130.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS	Sept. 4 1952	Week Ago	Month Ago	Year Ago	5 Yrs Ago
Bars, H.R., Pittsburgh	3.95	3.95	3.95	3.70	2.80
Bars, H.R., Chicago	3.95	3.95	3.95	3.70	2.80
Bars, H.R. del. Philadelphia	4.302	4.302	4.302	4.223	3.28
Bars, C.F., Pittsburgh	4.925	4.925	4.925	4.55	3.55
Shapes, Std., Pittsburgh	3.85	3.85	3.85	3.65	2.80
Shapes, Std., Chicago	3.85	3.85	3.85	3.65	2.80
Shapes, del. Philadelphia	4.13	4.13	4.13	3.918	2.94
Plates, Pittsburgh	3.90	3.90	3.90	3.70	2.95
Plates, Chicago	3.90	3.90	3.90	3.70	2.95
Plates, Coatesville, Pa.	4.15	4.15	4.15	3.94	3.15
Plates, Sparrows Point, Md.	3.90	3.90	3.90	3.70	2.95
Plates, Clayton, Del.	4.25	4.25	4.25	4.15	3.15
Sheets, H.R., Pittsburgh	3.775	3.775	3.775	3.60-75	2.80
Sheets, H.R., Chicago	3.775	3.775	3.775	3.60	2.80
Sheets, C.R., Pittsburgh	4.575	4.575	4.575	4.35	3.55
Sheets, C.R., Chicago	4.575	4.575	4.575	4.35	3.55
Sheets, C.R., Detroit	4.775	4.775	4.775	4.55	3.70
Sheets, Galv., Pittsburgh	4.375	4.375	4.375	4.25	3.50
Strip, H.R., Pittsburgh	3.75	4.00-3.75	4.00-3.75	4.00-3.75	4.00-2.80
Strip, H.R., Chicago	3.775	3.775	3.775	3.60-75	2.80
Strip, C.R., Pittsburgh	4.575	4.575	4.575	4.35	3.55
Strip, C.R., Chicago	4.575	4.575	4.575	4.35	3.55
Strip, C.R., Detroit	4.775	4.775	4.775	4.55	3.70
Wire, Basic, Pittsburgh	4.55-5.225	4.55-5.225	4.55-5.225	4.55-5.15	3.625
Nails, Wire, Pittsburgh	5.00-5.60	5.00-5.60	5.00-5.60	4.85-5.00	3.75
Tin plate box, Pittsburgh	$8.50	$8.50	$8.50	$8.70	$6.75
SEMIFINISHED					
Billets, forging, Pitts. (NT)	$70.50	$70.50	$70.00	$66.00	$46.50
Wire rods, No. 5, Pitts.	4.325	4.325	4.325	4.10-30	2.925

PIG IRON, Gross Ton					
Bessemer, Pitts.	$53.00	$53.00	$53.00	$53.00	$37.00
Basic, Valley	52.00	52.00	52.00	52.00	36.00
Basic, del. Phila.	56.75	56.75	56.75	56.61	38.72
No. 2 Fdry., Pitts.	52.50	52.50	52.50	52.50	36.00
No. 2 Fdry., Chicago	52.00	52.00	52.00	52.00	36.00
No. 2 Fdry., Valley	52.00	52.00	52.00	52.00	36.50
No. 2 Fdry., del. Phila.	57.25	57.25	57.25	57.11	39.22
No. 2 Fdry., Birm.	48.88	48.88	48.88	48.88	34.88
No. 2 Fdry., Birmingham, del. Cin.	56.43	56.43	56.43	55.49	38.25
Malleable, Valley	52.00	52.00	52.00	52.00	36.50
Malleable, Chicago	52.00	52.00	52.00	52.00	36.50
Charcoal, Lyles, Tenn.	66.00	66.00	66.00	66.00	44.00
Ferromanganese, Etna, Pa.	225.00	225.00	188.00	188.00	140.25

F.o.b. cars, Pittsburgh. †Preliminary.

SCRAP, Gross Ton (including broker's commission)					
No. 1 Heavy Melt., Pitts.	$44.00	$44.00	$44.00	$45.00	$38.00
No. 1 Heavy Melt., E. Pa.	41.50	41.50	41.50	43.50	36.75
No. 1 Heavy Melt., Chicago	42.50	42.50	42.50	43.50	38.75
No. 1 Heavy Melt., Valley	44.00	44.00	44.00	45.00	39.00
No. 1 Heavy Melt., Cleve.	43.00	43.00	43.00	44.00	38.25
No. 1 Heavy Melt., Buffalo	43.00	43.00	37.00	44.00	37.50
Rails, Rerolling, Chicago	52.50	52.50	52.50	52.50	46.25
No. 1 Cast, Chicago	50.00	50.00	45.00	49.00	43.50

* Nominal. † F.o.b. shipping point.

COKE, Net Ton					
Beehive, Furn. Connsvl.	$14.75	$14.75	$14.75	$14.75	$11.50-12.50
Beehive, Fdry. Connsvl.	17.00	17.00	17.00	17.00	14.00-15.00
Oven, Fdry. Chicago	23.00	23.00	23.00	23.00	17.50

PIG IRON

F.o.b. furnace prices quoted under GCPR as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies published on second following page. **OPA ceiling prices increased Sept. 4, retroactive to July 28. Prices quoted below were in effect prior to the Sept. 4 increase. For details see page 175.**

PIG IRON, Gross Ton	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem, Pa. B2	$54.00	$54.50	$55.00	$55.50
NewYork, del.	....	58.28	58.78	....
Newark, del.	57.02	57.52	58.02	58.52
Philadelphia, del.	56.75	57.25	57.75	58.25
Birmingham District				
AlabamaCity, Ala. R2	48.38	48.88	....	....
Birmingham, R2	48.38	48.88	....	....
Birmingham, S9	48.38	48.88	....	....
Woodward, Ala. W15	48.38	48.88	....	....
Cincinnati, del.	....	56.43	....	....
Buffalo District				
Buffalo, R2	52.00	52.50	53.00	....
Buffalo, H1	52.00	52.50	53.00	....
Tonawanda, N.Y., W12	52.00	52.50	53.00	....
No. Tonawanda, N.Y., T9	....	52.50	53.00	....
Boston, del.	62.65	63.15	63.65	....
Rochester, N.Y., del.	55.02	55.52	56.02	....
Syracuse, N.Y., del.	56.12	56.62	57.12	....
Chicago District				
Chicago, I-3	52.00	52.50	52.50	53.00
Gary, Ind., U5	52.00	....	52.50	....
IndianaHarbor, Ind., I-2	52.00	....	52.50	....
So. Chicago, Ill., W14	52.00	52.50	52.50	....
So. Chicago, Ill., Y1	52.00	52.50	52.50	....
So. Chicago, Ill., U5	52.00	....	52.50	53.00
Milwaukee, del.	54.17	54.67	54.67	55.17
Muskegon, Mich., del.	....	58.80	58.80	....
Cleveland District				
Cleveland, A7	52.00	52.50	52.50	53.00
Cleveland, R2	52.00	52.50	52.50	....
Akron, O., del. from Cleve.	54.61	55.11	55.11	55.61
Lorain, O., N3	52.00	....	....	53.00
Duluth, I-3	....	....	52.50	....
Erie, Pa., I-3	52.00	52.50	52.50	53.00
Everett, Mass., E1	....	59.75	60.25	....
Fontana, Calif., K1	58.00	58.50	....	....
Seattle, Tacoma, Wash., del.	....	60.66	....	....
Portland, Oreg., del.	....	60.66	....	....
LosAngeles, SanFrancisco, del.	60.16	60.66	....	....
GraniteCity, Ill., G4	53.90	54.40	54.90	....
St. Louis, del. (inc. tax)	54.65	55.15	55.65	....
Ironton, Utah, C11	52.00	52.50	....	....
Geneva, Utah, C11	52.00	52.50	....	....
LoneStar, Tex., L6	48.00	*48.50	48.50	....
Minnequa, Colo., C10	54.00	55.00	55.00	....
Pittsburgh District				
Nevillelsland, Pa., P6	....	52.50	52.50	53.00
Pitts., N.&S. sides, Ambridge Aliquippa, del.	....	53.87	53.87	54.37
McKeesRocks, del.	....	53.54	53.54	54.04
Lawrenceville, Homestead, Wilmerding, Monaca, del.	....	54.16	54.16	54.66
Verona, Trafford, del.	....	54.69	54.69	55.19
Brackenridge, del.	....	54.95	54.95	55.45
Bessemer, Pa., U5	52.00	....	52.50	53.00
Clairton, Rankin, So. Duquesne, Pa., U5	52.00	....	....	....
McKeesport, Pa., N3	52.00	....	....	53.00
Monessen, Pa., P7	54.00	....	....	....
Sharpsville, Pa., S6	....	....	52.50	53.00
Steelton, Pa., B2	54.00	54.50	55.00	55.50
Swedeland, Pa., A3	56.00	56.50	57.00	57.50
Toledo, O., I-3	52.00	52.50	52.50	53.00
Cincinnati, del.	57.47	57.97	....	....
Troy, N.Y., R2	54.00	54.50	55.00	55.50
Youngstown District				
Hubbard, O., Y1	52.00	52.50	52.50	....
Youngstown, Y1	52.00	52.50	52.50	....
Youngstown, U5	52.00	....	....	53.00
Mansfield, O., del.	56.65	57.15	57.15	57.65

* Low phos, southern grade.

PIG IRON DIFFERENTIAL

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos iron on which base is 1.75-2.00%.

Phosphorus: Deduct 38 cents per ton for P content of 0.70% and over.

Manganese: Add 50 cents per ton for each 0.50% manganese over 1% or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add $2 per ton and each additional 0.25%, add $1 per ton.

BLAST FURNACE SILVERY PIG IRON, Gross Ton (Base 6.0-6.50% silicon; add $1.50 for each 0.5% Si)	
Jackson, O., G2, J1	$62.50
Buffalo, H1	63.75

ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton (Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1 for each 0.5% Mn over 1%; $2 per gross ton premium for 0.045% max P.)	
NiagaraFalls, N.Y., P15	$88.00
Keokuk, Iowa, Openhearth & Fdry., frt. allowed K2	92.50
Keokuk, OH & Fdry., 12% lb piglets, 16% Si, frt. allowed K2	95.50
Wenatchee, Wash., OH & Fdry., frt. allowed K2	92.50

CHARCOAL PIG IRON, Gross Ton (Low phos semi-cold blast; differential charged for silicon over base grade; also for hard chilling iron Nos. 5 & 6)	
Lyles, Tenn., T3	$66.00

LOW PHOSPHORUS PIG IRON, Gross Ton	
Cleveland, intermediate, A7	$57.00
Steelton, Pa., B2	60.00
Philadelphia, delivered	63.55
Troy, N.Y., R2	60.00

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Semifinished and Finished Steel Products

Mill prices quoted under GCPR as reported to STEEL, Sept. 4, 1952, cents per pound except as otherwise noted. Changes shown in italics. Code numbers following mill points indicate producing company; key on next two pages.

INGOTS, Carbon, Forging (NT)
Fontana,Calif. K1 ... $81.00
Munhall,Pa. U5 ... 54.00
Seattle S24 ... 73.00

INGOTS, Alloy (NT)
Detroit R7 ... $57.00
Fontana,Calif. K1 ... 83.00
Houston S5 ... 62.00
Midland,Pa. C18 ... 54.00
Munhall,Pa. U5 ... 57.00
Seattle S24 ... 80.00

BILLETS, BLOOMS & SLABS
Carbon, Rerolling (NT)
Bessemer,Pa. U5 ... $59.00
Clairton,Pa. U5 ... 59.00
Ensley,Ala. T2 ... 59.00
Fairfield,Ala. T2 ... 59.00
Fontana,Calif. K1 ... 78.00
Gary,Ind. U5 ... 59.00
Johnstown,Pa. B2 ... 59.00
Lackawanna,N.Y. B2 ... 59.00
Munhall,Pa. U5 ... 59.00
So.Chicago,Ill. U5 ... 59.00
So.Duquesne,Pa. U5 ... 59.00

Carbon, Forging (NT)
Bessemer,Pa. U5 ... $70.50
Buffalo,N.Y. R2 ... 70.50
Canton,O. R2 ... 70.50
Clairton,Pa. U5 ... 70.50
Cleveland,O. R2 ... 70.50
Conshohocken,Pa. A3 ... 77.50
Detroit,Mich. R7 ... 73.50
Ensley,Ala. T2 ... 70.50
Fairfield,Ala. T2 ... 70.50
Fontana,Calif. K1 ... 89.50
Gary,Ind. U5 ... 70.50
Geneva,Utah C11 ... 70.50
Houston S5 ... 74.00
Johnstown,Pa. B2 ... 70.50
Lackawanna,N.Y. B2 ... 70.50
Los Angeles B3 ... 89.50
Munhall,Pa. U5 ... 70.50
Seattle B3 ... 89.50
So.Chicago R2,U5,W14 ... 70.50
So.Duquesne,Pa. U5 ... 70.50
So.San Francisco B3 ... 89.50

Alloy, Forging (NT)
Bethlehem,Pa. B2 ... $76.00
Buffalo,N.Y. R2 ... 76.00
Canton,O. R2 ... 76.00
Canton,O. T7 ... 78.60
Conshohocken,Pa. A3 ... 83.00
Detroit,Mich. R7 ... 79.00
Fontana,Calif. K1 ... 95.00
Gary,Ind. U5 ... 76.00
Houston S5 ... 78.00
Ind.Harbor,Ind. Y1 ... 76.00
Johnstown,Pa. B2 ... 76.00
Lackawanna,N.Y. B2 ... 76.00
Los Angeles B3 ... 96.00
Massillon,O. R2 ... 76.00
Midland,Pa. C18 ... 76.00
Munhall,Pa. U5 ... 76.00
So.Chicago R2,U5,W14 ... 76.00
So.Duquesne,Pa. U5 ... 76.00
Struthers,O. Y1 ... 76.00
Warren,O. C17 ... 76.00

ROUNDS, SEAMLESS TUBE (NT)
Buffalo R2 ... $87.50
Canton,O. R2 ... 87.50
Cleveland R2 ... 87.50
Fontana,Calif. K1 ... 108.50
Gary,Ind. U5 ... 87.50
Massillon,O. R2 ... 87.50
So.Chicago,Ill. R2 ... 87.50
So.Duquesne,Pa. U5 ... 87.50

SHEET BARS (NT)
Fontana,Calif. K1 (43) $89.00

SKELP
Aliquippa,Pa. J5 ... $3.65
Munhall,Pa. U5 ... 3.55
Warren,O. R2 ... 3.55
Youngstown R2, U5 ... 3.55

WIRE RODS
Alton,Ill. L1 ... 4.70
AlabamaCity,Ala. R2 ... 4.325
Buffalo W12 ... 4.10
Cleveland A7 ... 4.325
Donora,Pa. A7 ... 4.325
Fairfield,Ala. T2 ... 4.325
Fontana,Calif. K1 ... 5.125
Houston S5 ... 4.50
Johnstown,Pa. B2 ... 4.325
Joliet,Ill. A7 ... 4.325
Los Angeles B3 ... 5.125
Minnequa,Colo. C10 ... 4.575
Monessen,Pa. P7 ... 4.30
No.Tonawanda,N.Y. B11 ... 4.325
Pittsburg,Calif. C11 ... 4.975
Portsmouth,O. P12 ... 4.525
Roebling,N.J. R5 ... 4.425
So.Chicago,Ill. R2 ... 4.325
SparrowsPoint,Md. B2 ... 4.425
Sterling,Ill.(1) NI5 ... 4.325
Struthers,O. Y1 ... 4.325
Torrance,Calif. C11 ... 5.125
Worcester,Mass. A7 ... 4.625

SHEET STEEL PILING
Ind.Harbor,Ind. I-2 ... 4.675
Lackawanna,N.Y. B2 ... 4.675
Munhall,Pa. U5 ... 4.675
So.Chicago,Ill. U5 ... 4.675

STRUCTURALS
Carbon Steel Stand. Shapes
AlabamaCity,Ala. R2 ... 3.85
Aliquippa,Pa. J5 ... 3.85
Bessemer,Ala. T2 ... 3.85
Bethlehem,Pa. B2 ... 3.90
Clairton,Pa. U5 ... 3.85
Fairfield,Ala. T2 ... 3.85
Fontana,Calif. K1 ... 4.45
Gary,Ind. U5 ... 3.85
Geneva,Utah C11 ... 3.85
Houston S5 ... 4.05
Ind.Harbor,Ind. I-2 ... 3.85
Johnstown,Pa. B2 ... 3.90
Kansas City,Mo. S5 ... 4.25
Lackawanna,N.Y. B2 ... 3.90
Los Angeles B3 ... 4.45
Minnequa,Colo. C10 ... 4.30
Munhall,Pa. U5 ... 3.85
Phoenixville,Pa. P4 ... 5.90
Portland,Oreg. O4 ... 4.50
Seattle B3 ... 4.50
So.Chicago,Ill. U5, W14 ... 3.85
So.San Francisco B3 ... 4.40
Torrance,Calif. C11 ... 4.45
Weirton,W.Va. W6 ... 4.10

Alloy Stand. Shapes
Clairton,Pa. U5 ... 4.725
Fontana,Calif. K1 ... 5.925
Munhall,Pa. U5 ... 4.725
So.Chicago,Ill. U5 ... 4.725

H.S., L.A. Stand. Shapes
Aliquippa,Pa. J5 ... 5.80
Bessemer,Ala. T2 ... 5.80
Bethlehem,Pa.(14), B2 ... 5.80
Clairton,Pa. U5 ... 5.80
Fairfield,Ala. T2 ... 5.80
Fontana,Calif. K1 ... 6.40
Gary,Ind. U5 ... 5.80
Geneva,Utah C11 ... 5.80
Ind.Harbor,Ind. I-2 ... 5.80
Ind.Harbor,Ind. Y1 ... 6.30
Johnstown,Pa. B2 ... 5.80
Lackawanna,N.Y.(14) B2 ... 5.80
Los Angeles B3 ... 6.55
Munhall,Pa. U5 ... 5.80
Seattle B3 ... 6.40
So.Chicago,Ill. U5 ... 5.80
So.San Francisco B3 ... 6.30
Struthers,O. Y1 ... 6.30

Wide Flange
Bethlehem,Pa. B2 ... 3.90
Clairton,Pa. U5 ... 3.85
Fontana,Calif. K1 ... 4.85
Lackawanna,N.Y. B2 ... 3.90
Munhall,Pa. U5 ... 3.85
So.Chicago,Ill. U5 ... 3.85

H.S., L.A. Wide Flange
Aliquippa,Pa. J5 ... 5.50
Lackawanna,N.Y. B2 ... 5.50
Munhall,Pa. U5 ... 5.75
So.Chicago,Ill. U5 ... 5.75

BEARING PILES
Munhall,Pa. U5 ... 3.85
So.Chicago,Ill. U5 ... 3.85

PLATES,High-Strength Low-Alloy
Aliquippa,Pa. J5 ... 5.95
Bessemer,Ala. T2 ... 5.95
Clairton,Pa. U5 ... 5.95
Cleveland,O. R2 ... 5.95
Conshohocken,Pa. A3 ... 6.20
Ecorse,Mich. G5 ... 6.90
Fairfield,Ala. T2 ... 5.95
Fontana,Calif. K1 ... 6.55
Gary,Ind. U5 ... 5.95
Geneva,Utah C11 ... 5.95
Ind.Harbor,Ind. I-2 ... 5.95
Ind.Harbor,Ind. Y1 ... 6.45
Johnstown,Pa. B2 ... 5.95
Munhall,Pa. U5 ... 5.95
Pittsburgh,Pa. J5 ... 5.70
Seattle B3 ... 6.85
Sharon,Pa. S3 ... 5.95
So.Chicago,Ill. U5 ... 5.95
SparrowsPoint,Md. B2 ... 5.95
Warren,O. R2 ... 5.95
Youngstown Y1 ... 6.45

PLATES, Open-Hearth Alloy
Claymont,Del. C22 ... 5.35
Coatesville,Pa. L7 ... 5.75
Conshohocken,Pa. A3 ... 5.50
Fontana,Calif. K1 ... 6.20
Gary,Ind. U5 ... 5.25
Johnstown,Pa. B2 ... 5.25
Munhall,Pa. U5 ... 5.25
Sharon,Pa. S3 ... 5.50
So.Chicago,Ill. U5 ... 5.25
SparrowsPoint,Md. B2 ... 5.25

FLOOR PLATES
Cleveland J5 ... 4.95
Conshohocken,Pa. A3 ... 4.95
Ind.Harbor,Ind. I-2 ... 4.95
Munhall,Pa. U5 ... 4.95
So.Chicago,Ill. U5 ... 4.95

PLATES, Ingot Iron
Ashland,c.l. (15), A10 ... 4.15
Ashland,c.l. (15), A10 ... 4.65
Cleveland,c.l. R2 ... 4.50
Warren,O.,c.l. R2 ... 4.50

PLATES, Carbon Steel
AlabamaCity,Ala. R2 ... 3.90
Aliquippa,Pa. J5 ... 3.90
Ashland,Ky. (15), A10 ... 3.90
Bessemer,Ala. T2 ... 3.90
Clairton,Pa. U5 ... 3.90
Claymont,Del. C22 ... 4.35
Cleveland,O. R2 ... 3.90
Coatesville,Pa. L7 ... 4.35
Conshohocken,Pa. A3 ... 4.35
Ecorse,Mich. G5 ... 4.45
Fairfield,Ala. T2 ... 3.90
Fontana,Calif.(30) K1 ... 4.50
Gary,Ind. U5 ... 3.90
Granite City,Ill. G4 ... 4.60
Geneva,Utah C11 ... 3.90
Harrisburg,Pa. C6 ... 6.30
Houston S5 ... 4.10
Ind.Harbor,Ind. I-2, Y1 ... 3.90
Johnstown,Pa. B2 ... 3.90
Lackawanna,N.Y. B2 ... 3.90
Minnequa,Colo. C10 ... 4.70
Munhall,Pa. U5 ... 3.90
Pittsburgh,Pa. J5 ... 3.90
Seattle B3 ... 4.80
Sharon,Pa. S3 ... 4.15
So.Chicago,Ill. U5, W14 ... 3.90
SparrowsPoint,Md. B2 ... 3.90
Steubenville,O. W10 ... 3.90
Warren,O. R2 ... 3.90
Weirton,W.Va. W6 ... 4.20
Youngstown R2, U5, Y1 ... 3.90

PLATES, Carbon A.R.
Fontana,Calif. K1 ... 5.65
Geneva,Utah C11 ... 5.05

PLATES, Wrought Iron
Economy,Pa. B14 ... 8.60

BAR SIZE ANGLES, S. Shapes
Aliquippa,Pa. J5 ... 3.95
Atlanta,Ga. A11 ... 4.50
Niles,Calif. P1 ... 5.05
Portland,Oreg. O4 ... 4.65
San Francisco S7 ... 4.85

BAR SIZE ANGLES, H.R CARBON
Bethlehem,Pa. B2 ... 4.15

BARS, Hot-Rolled Carbon
AlabamaCity,Ala. R2 ... 3.95
Aliquippa,Pa. J5 ... 3.95
Alton,Ill. L1 ... 4.50
Atlanta,Ga. A11 ... 4.50
Bessemer,Ala. T2 ... 3.95
Buffalo R2 ... 3.95
Canton,O. R2 ... 3.95
Clairton,Pa. U5 ... 3.95
Cleveland R2 ... 3.95
Detroit R7 ... 4.10
Ecorse,Mich. G5 ... 4.30
Emeryville,Calif. J7 ... 4.70
Fairfield,Ala. T2 ... 3.95
Fontana,Calif. K1 ... 4.65
Gary,Ind. U5 ... 3.95
Houston S5 ... 4.10
Ind.Harbor,Ind. I-2, Y1 ... 3.95
Johnstown,Pa. B2 ... 3.95
Kansas City,Mo. S5 ... 4.30
Lackawanna,N.Y. B2 ... 3.95
Los Angeles B3 ... 4.65
Milton,Pa. B6 ... 4.55
Minnequa,Colo. C10 ... 4.40
Niles,Calif. P1 ... 5.05
N.Tonawanda,N.Y. B11 ... 3.95
Pittsburg,Calif. C11 ... 4.65
Pittsburgh,Pa. J5 ... 3.95
Portland,Oreg. O4 ... 4.65
Seattle B3 ... 4.70
Seattle N14 ... 4.70
So.Chicago R2,U5,W14 ... 3.95
So.Duquesne,Pa. U5 ... 3.95
So.San Fran.Calif. B3 ... 4.70
Sterling,Ill. NI5 ... 4.55
Struthers,O. Y1 ... 3.95
Torrance,Calif. C11 ... 4.65
Weirton,W.Va. W6 ... 4.10
Youngstown R2, U5 ... 3.95

BARS, Hot-Rolled Alloy
Bethlehem,Pa. B2 ... 4.675
Buffalo R2 ... 4.675
Canton,O. R2 ... 4.675
Canton,O. T7 ... 4.725
Clairton,Pa. U5 ... 4.675
Detroit R7 ... 4.825
Ecorse,Mich. G5 ... 5.025
Fontana,Calif. K1 ... 5.725
Gary,Ind. U5 ... 4.675
Houston S5 ... 4.70
Ind.Harbor,Ind. I-2, Y1 ... 4.675
Johnstown,Pa. B2 ... 4.675
Kansas City,Mo. S5 ... 4.90
Lackawanna,N.Y. B2 ... 4.675
Los Angeles B3 ... 5.725
Massillon,O. R2 ... 4.675
Midland,Pa. C18 ... 4.50
So.Chicago R2,U5,W14 ... 4.675
So.Duquesne,Pa. U5 ... 4.675
Struthers,O. Y1 ... 4.675
Warren,O. C17 ... 4.675
Youngstown U5 ... 4.675

BAR SHAPES, Hot-Rolled Alloy
Clairton,Pa. U5 ... 4.925
Gary,Ind. U5 ... 4.925
Youngstown U5 ... 4.925

BARS & SMALL SHAPES, H.R. High-Strength Low-Alloy
Aliquippa,Pa. J5 ... 5.925
Bessemer,Ala. T2 ... 5.925
Bethlehem,Pa. B2 ... 5.925
Clairton,Pa. U5 ... 5.925
Cleveland R2 ... 5.925
Ecorse,Mich. G5 ... 6.625
Fairfield,Ala. T2 ... 5.925
Fontana,Calif. K1 ... 6.975
Gary,Ind. U5 ... 5.925
Ind.Harbor,Ind. I-2 ... 5.925
Indiana Harbor,Ind. Y1 ... 6.425
Johnstown,Pa. B2 ... 5.925
Lackawanna,N.Y. B2 ... 5.925
Los Angeles B3 ... 6.625
Pittsburgh J5 ... 5.925
Seattle B3 ... 6.675
So.Duquesne,Pa. U5 ... 5.925
So.San Francisco B3 ... 6.675
Struthers,O. Y1 ... 6.425
Youngstown U5 ... 5.925

BARS, Cold-Finished Carbon
Ambridge,Pa. W18 ... 4.925
Beaver Falls,Pa. R2 ... 4.925
Beaver Falls,Pa. M12 ... 4.925
Buffalo B6 ... 4.975
Camden,N.J. P13 ... 5.375
Carnegie,Pa. C12 ... 4.55
Chicago W18 ... 4.925
Cleveland A7, C20 ... 4.925
Detroit P17, R7 ... 5.075
Donora,Pa. A7 ... 4.925
Elyria,O. W8 ... 4.55
Franklin Park,Ill. N5 ... 4.925
Gary,Ind. R2 ... 4.925
Green Bay,Wis. F7 ... 4.925
Hammond,Ind. L2 M13 ... 4.925
Hartford,Conn. R2 ... 5.475
Harvey,Ill.(1) B5 ... 4.925
Los Angeles R2 ... 6.375
Mansfield,Mass. B5 ... 5.475
Massillon,O. R2, R8 ... 4.925
Monaca,Pa. S17 ... 4.925
Newark,N.J. W18 ... 5.375
Plymouth,Mich. P5 ... 5.175
Pittsburgh J5 ... 4.925
Putnam,Conn. W18 ... 5.475
Readville,Mass. C14 ... 5.475
St. Louis,Mo. M5 ... 5.30
So.Chicago,Ill. W14 ... 4.925
Spring City,Pa. K3 ... 5.375
Struthers,O. Y1 ... 4.925
Waukegan,Ill. A7 ... 4.925
Youngstown Y1 ... 4.925
Youngstown F3 ... 4.55

BARS, Cold-Finished Alloy
Ambridge,Pa. W18 ... 6.00
Beaver Falls,Pa. M12 ... 5.40
Bethlehem,Pa. B2 ... 6.00
Buffalo B6 ... 6.00
Camden,N.J. P13 ... 6.40
Canton,O. R2 ... 6.00
Canton,O. T7 ... 5.90
Carnegie,Pa. C12 ... 5.40
Chicago W18 ... 6.00
Cleveland A7 ... 6.05
Cleveland C20 ... 6.00
Detroit P17, R7 ... 6.15
Donora,Pa. A7 ... 6.05
Elyria,O. W8 ... 5.40
Gary,Ind. R2 ... 6.00
Hammond,Ind. L2 M13 ... 6.00
Hartford,Conn. R2 ... 6.45
Harvey,Ill.(1) B5 ... 6.00
Lackawanna,N.Y. B2 ... 6.00
Mansfield,Mass. B5 ... 6.45
Massillon,O. R2, R8 ... 6.00
Midland,Pa. C18 ... 5.40
Monaca,Pa. S17 ... 6.00
Newark,N.J. W18 ... 6.35
Plymouth,Mich. P5 ... 6.20
So.Chicago,Ill. R2, W14 ... 6.00
Spring City,Pa. K3 ... 6.20
Struthers,O. Y1 ... 6.00
Warren,O. C17 ... 6.00
Waukegan,Ill. A7 ... 6.05
Worcester,Mass. A7 ... 6.35
Youngstown Y1 ... 6.00
Youngstown F3 ... 5.40

RAIL STEEL BARS
Chicago Hts.(3,4), C2 ... 4.75
Chicago Hts.(3,4), I-2 ... 4.75
Franklin Pa.(3,4), P5 ... 4.75
Fort Worth,Tex.(26), T4 ... 4.85
Huntingt'n,W.Va.(5), W7 ... 5.25
Marion,O.(3), P11 ... 4.75
Moline,Ill.(3), R2 ... 4.65
Tonawanda(3,4), B12 ... 4.75
Williamsport(1), SI9 ... 5.25
Williamsport(4), SI9 ... 5.35

BARS, Wrought Iron
Economy,Pa.(8 R.), B14 ... 9.60
Economy,Pa.(6 R.), B14 ... 11.90
Economy(Staybolt), B14 ... 12.20
McK.Rks.(Staybolt), L5 ... 14.50
McK.Rks.(8 R.), L5 ... 9.60
McK.Rks.(6 R.), L5 ... 13.00

BARS, Reinforcing (Fabricators)
AlabamaCity,Ala. R2 ... 3.95
Atlanta,A11 ... 4.50
Buffalo R2 ... 3.95
Cleveland R2 ... 3.95
Emeryville,Calif. J7 ... 4.70
Fairfield,Ala. T2 ... 3.95
Fontana,Calif. K1 ... 4.65
Gary,Ind. U5 ... 3.95
Houston S5 ... 4.10
Ind.Harbor,Ind. I-2, Y1 ... 3.95
Johnstown,Pa. B2 ... 3.95
Kansas City,Mo. S5 ... 4.30
Lackawanna,N.Y. B2 ... 3.95
Los Angeles B3 ... 4.65
Milton,Pa. B6 ... 4.55
Minnequa,Colo. C10 ... 4.75
Niles,Calif. P1 ... 5.05
Pittsburg,Calif. C11 ... 4.65
Pittsburgh J5 ... 3.95
Portland,Oreg. O4 ... 4.65
San Spring,Okla. S5 ... 4.60
Seattle N14 ... 4.70
Seattle B3 ... 4.70
So.Chicago,Ill. R2 ... 3.95
So.Duquesne,Pa. U5 ... 3.95
So.San Francisco B3 ... 4.70
SparrowsPoint,Md. B2 ... 3.95
Sterling,Ill.(1) NI5 ... 4.70
Struthers,O. Y1 ... 3.95
Torrance,Calif. C11 ... 4.65
Youngstown R2, U5 ... 3.95

BARS, Reinforcing
(Fabricated by Consumers)
Huntington,W.Va. W7 ... 5.50
Johnstown, ¼-1" B2 ... 4.75
Los Angeles B3 ... 5.45
Marion,O. P11 ... 5.00
Seattle B3, N14 ... 5.55
So.San Francisco B3 ... 5.45
SparrowsPt., ¼-1" B2 ... 4.75
Williamsport,Pa. S19 ... 5.10

SHEETS, Hot-Rolled Steel
(18 gage and heavier)
AlabamaCity,Ala. R2 ... 3.775
Ashland,Ky.(8), A10 ... 3.775
Butler,Pa. A10 ... 3.775
Cleveland J5, R2 ... 3.775
Conshohocken,Pa. A3 ... 4.175
Detroit M1 ... 4.40
Ecorse,Mich. G5 ... 3.975
Fairfield,Ala. T2 ... 3.775
Fontana,Calif. K1 ... 4.725
Gary,Ind. U5 ... 3.775
Geneva,Utah C11 ... 3.875
Granite City,Ill. G4 ... 4.30
Ind.Harbor,Ind. I-2, Y1 ... 3.775
Irvin,Pa. U5 ... 3.775
Lackawanna,N.Y. B2 ... 3.775
Munhall,Pa. U5 ... 3.775
Niles,O. N12 ... 5.25
Pittsburg,Calif. C11 ... 4.475
Pittsburgh J5 ... 3.775
Sharon,Pa. S3 ... 4.175
So.Chicago,Ill. W14 ... 3.775
SparrowsPoint,Md. B2 ... 3.775
Steubenville,O. W10 ... 3.775
Torrance,Calif. C11 ... 4.475
Warren,O. R2 ... 3.775
Weirton,W.Va. W6 ... 4.275
Weelg'g'ton,Pa.A4 ... 3.75
Youngstown U5, Y1 ... 3.775

SHEETS, H.R. (19 gage)
AlabamaCity,Ala. R2 ... 4.925
Dover,O. R1 ... 5.425
Mansfield,O. E6 ... 5.65
Niles,O. N12 ... 5.75
Torrance,Calif. C11 ... 5.575

SHEETS, H.R. (14 ga., heavier) High-Strength Low-Alloy
Cleveland J5, R2 ... 5.675
Conshohocken,Pa. A3 ... 5.925
Ecorse,Mich. G5 ... 6.225
Fairfield,Ala. T2 ... 5.675
Fontana,Calif. K1 ... 6.625
Gary,Ind. U5 ... 5.675
Ind.Harbor,Ind. I-2 ... 5.675
Ind.Harbor,Ind. Y1 ... 6.175
Irvin,Pa. U5 ... 5.675
Lackawanna(35),B2 ... 5.675
Pittsburgh J5 ... 5.675
Sharon,Pa. S3 ... 5.675
So.Chicago,Ill. U5 ... 5.675
SparrowsPoint(36),B2 ... 5.675
Warren,O. R2 ... 5.675
Weirton,W.Va. W6 ... 6.025
Youngstown U5 ... 5.675
Youngstown Y1 ... 6.175

SHEETS, Cold-Rolled High-Strength Low-Alloy
Cleveland J5, R2 ... 6.925
Ecorse,Mich. G5 ... 7.475
Fontana,Calif. K1 ... 7.875
Gary,Ind. U5 ... 6.925
Indiana Harbor,Ind. Y1 ... 7.425
Indiana Harbor,Ind. I-2 ... 6.925
Irvin,Pa. U5 ... 6.925
Lackawanna(37),B2 ... 6.925
Pittsburgh J5 ... 6.925
SparrowsPoint(38),B2 ... 6.925
Warren,O. R2 ... 6.925

Warton,W Va. W6 7.275
Youngstown Y1 7.425

SHEETS, Cold-Rolled Steel (Commercial Quality)
Butler Pa. A10 4.575
Cleveland J5, R2 4.575
Ecorse,Mich. G5 4.775
Fairfield,Ala. T2 4.575
Follansbee,W Va. F4 5.75
Fontana,Calif. K1 6.025
Gary,Ind. U5 4.575
Granite City,Ill. G4 5.275
Ind Harbor,Ind. I-2 Y1 4.575
Irvin,Pa. U5 4.575
Lackawanna,N Y. B2 4.575
Middletown,O. A10 4.575
Pittsburg,Calif. C11 5.025
Pittsburgh J5 4.575
SparrowsPoint,Md. B2 4.575
Steubenville,O. W10 4.575
Warren,O. R2 4.575
Warton,W Va. W6 4.575
Youngstown,O. Y1 4.575

SHEETS, Galv'd No. 10 Steel
Alabama City,Ala. R2 ... 5.075
Ashland,Ky. A10 ... 5.075
Canton,O. R2 ... 5.075
Dearborn,O. N16 ... 5.975
Dover,O. R1 ... 5.775
Fairfield,Ala. T2 ... 5.075
Gary,Ind. U5 ... 5.075
Granite City,Ill. G4 ... 5.50
Ind Harbor,Ind. I-2 ... 5.075
Irvin,Pa. U5 ... 5.075
Kokomo,Ind. C16 ... 5.475
Martins Ferry,O. W10 ... 5.075
Niles,O. N12 ... 6.00
Pittsburg,Calif. C11 ... 5.825
Sparrows Point,Md. B2 ... 5.075
Steubenville,O. W10 ... 5.075
Torrance,Calif. C11 ... 5.825
Warton,W Va. W6 ... 5.075

SHEETS, Galvanized No. 10, High-Strength Low-Alloy
Irvin,Pa. U5 ... 7.625
SparrowsPoint,Md. B2 ... 7.775

SHEETS, Galvannealed Steel
Canton,O. R2 ... 5.625
Irvin,Pa. U5 ... 5.625
Kokomo,Ind. C16 ... 6.025
Niles,O. N12 ... 6.50

SHEETS, ZINCGRIP Steel No. 10
Butler Pa. A10 ... 5.325
Middletown,O. A10 ... 5.325

SHEETS, Electro Galvanized
Cleveland R2 (2S) ... 5.925
Niles,O. R2 (2S) ... 5.925
Warton,W Va. W6 ... 6.775

SHEETS, Drum Body
Pittsburg,Calif. C11 ... 4.475
Torrance,Calif. C11 ... 4.475

SHEETS, Well Casing
Fontana,Calif. A1 (4S) ... 8.10

BLUED Stock, 29 ga.
Yorkville,O. W10 ... 7.00
Follansbee,W Va. F4 ... 7.10
Follansbee (2S) F4 ... 6.425

SHEETS, Enameling Iron
Ashland,Ky.(4S) A10 ... 4.925
Cleveland R2 ... 4.925
Gary,Ind. U5 ... 4.775
Granite City,Ill. G4 ... 5.025

Ind Harbor,Ind. I-2 ... 4.925
Irvin,Pa. U5 ... 4.925
Middletown,O. A10 ... 4.925
Youngstown Y1 ... 4.925

BLACK PLATE (Base Box)
Aliquippa,Pa. J5 ... $6.25
Fairfield,Ala. T2 ... 6.50
Granite City,Ill. G4 ... 6.70
Ind Harbor,Ind. I-2, Y1 ... 6.50
Irvin,Pa. U5 ... 6.50
Niles,O. R2 ... 6.50
Pittsburg,Calif. C11 ... 7.25
SparrowsPoint,Md. B2 ... 6.60
Warren,O. R2 ... 6.50
Warton,W Va. W6 ... 6.50
Yorkville,O. W10 ... 6.50

HOLLOWARE ENAMELING Black Plate (29 gage)
Follansbee,W Va. F4 ... 6.10
Gary,Ind. U5 ... 6.10
Granite City,Ill. G4 ... 6.05
Ind Harbor,Ind. Y1 ... 6.10
Irvin,Pa. U5 ... 6.10
Yorkville,O. W10 ... 6.35

SHEETS, Culvert No. 16

	Cu Alloy	Cu Fe
Ashland,Ky. A10	5.875	
Canton,O. R2	5.925	6.375
Fairfield,Ala. T2	5.875	6.125
Gary,Ind. U5	5.875	6.125
Ind Harbor,Ind. I-2	5.875	6.125
Irvin,Pa. U5	5.875	6.125
Kokomo,Ind. C16	6.425	
Martins Ferry,O. W10	5.875	
Pittsburg,Cal. C11	6.625	
Sparrows Pt. B2	5.875	
Torrance,Cal. C11	6.625	

SHEETS, Culvert, No. 16 Pure Iron

Ashland,Ky. A10	6.125
Fairfield,Ala. T2	6.125
Martins Ferry,O. W10	6.125

SHEETS, Hot-Rolled Ingot Iron 18 Gage and Heavier
Ashland,Ky.(8S) A10 ... 4.025
Cleveland R2 ... 4.375
Ind Harbor,Ind. I-2 ... 4.025
Warren,O. R2 ... 4.375

SHEETS, Cold-Rolled Ingot Iron
Butler Pa. A10 ... 5.075
Cleveland R2 ... 5.175
Middletown,O. A10 ... 5.075
Warren,O. R2 ... 5.175

SHEETS, Galvanized Ingot Iron No. 10 Field
Ashland,Ky.(8S) A10 ... 5.325
Canton,O. R2 ... 5.825

SHEETS, ZINCGRIP Ingot Iron
Butler Pa. A10 ... 5.575
Middletown,O. A10 ... 5.575

SHEETS, ALUMINIZED
Butler Pa. A10 ... 8.125

TINPLATE, American 1.25 Coke (Base Box)

	lb	1.50 lb
Aliquippa,Pa. J5	$8.70	$8.95
Fairfield,Ala. T2	8.80	9.05
Gary,Ind. U5	8.70	8.95
Ind Har. I-2, Y1	8.70	8.95
Irvin,Pa. U5	8.70	8.95
Pittsburg,Calif. C11	8.45	9.70
Sp Pt, Md. B2	8.80	9.05

TIN PLATE, Electrolytic (Base Box)

	0.25 lb	0.50 lb	0.75 lb
Aliquippa,Pa. J5	$7.40	$7.65	$8.05
Fairfield,Ala. T2	7.50	7.75	8.15
Gary,Ind. U5	7.40	7.65	8.05
Granite City,Ill. G4	7.60	7.85	8.25
Indiana Harbor,Ind. I-2, Y1	7.40	7.65	8.05
Irvin,Pa. U5	7.40	7.65	8.05
Niles,O. R2	7.40		
Pittsburg,Calif. C11	8.15	8.40	8.80
SparrowsPoint,Md. B2	7.50	7.75	8.15
Warton,W Va. W6	7.40	7.65	8.05
Yorkville,O. W10	7.40	7.65	8.05

SHEETS, SILICON, H R or C R (22 Ga.) COILS (Cut lengths 1/2c lower)

	Field	Armature	Electric	Motor	Dynamo
Beech Bottom,W (cut lengths)			7.85	9.10	9.60
Brackenridge Pa. A4			7.75	9.00	9.80
Granite City,Ill. G4 (cut lengths)			7.85	9.80	
Ind Harbor,Ind. I-2	7.55	7.85	7.85	(4S)	
Mansfield,O. E6 (cut lengths)	7.50	7.75	7.85	9.10	9.60
Niles,O. N12 (cut lengths)		9.75	7.75		
Vandergrift,Pa. U5		7.85	8.35	9.60	10.40
Warren,O. R2	7.55	7.85	8.35	9.60	10.40
Zanesville,O. A10		7.80	8.35	9.60	10.40

SHEETS, SILICON (22 Ga. Base) COILS (Cut Lengths 1/2c lower)

Transformer Grade	72	65	58	52
Beech Bottom,W (cut lengths)	10.45	11.00	11.70	12.50
Brackenridge Pa. A4	10.35			
Vandergrift Pa. U5	10.95	11.50	12.20	13.00
Warren,O. R2	10.95			
Zanesville,O. A10	10.95	11.50	12.20	13.00

H R or C R COILS AND CUT LENGTHS, SILICON (22 Ga.)

	T-100	T-90	T-80	T-73
Butler Pa. A10 (C R)			15.35	15.85
Vandergrift,Pa. U5	13.50	14.35	15.35	15.85

Warren,O. R2 .. 8.70 ...
Warton,W Va. W6 8.70 8.95
Yorkville,O. W10 8.70 8.95

MANUFACTURING TERNES (Special Coated)
Fairfield,Ala. T2 ... $7.85
Gary,Ind. U5 ... 7.75
Irvin,Pa. U5 ... 7.75
Yorkville,O. W10 ... 7.75

SHEETS, LT. Coated Ternes, 6 lb
Yorkville,O. W10 ... $8.65

SHEET, Mfg. Ternes, 8 lb (Commercial Quality)
Gary,Ind. U5 ... $9.75
Yorkville,O. W10 ... 9.75

SHEET, Long Terne Steel (Commercial Quality)
Beech Bottom,W Va. W10 5.475
Gary,Ind. U5 ... 5.475
Mansfield,O. E6 ... 6.05
Middletown,O. A10 ... 5.475
Niles,O. N12 ... 6.00
Warton,W Va. W6 5.475

SHEETS, Long Terne, Ingot Iron
Middletown,O. A10 ... 5.875

ROOFING SHORT TERNES (8 lb Coated)
Gary,Ind. U5 ... 9.75

STRIP, Hot-Rolled High-Strength Low-Alloy
Bessemer,Ala. T2 ... 5.65
Conshohocken,Pa. A3 ... 5.90
Ecorse,Mich. G5 ... 6.30
Fairfield,Ala. T2 ... 5.65
Fontana,Calif. K1 ... 6.55
Gary,Ind. U5 ... 5.65
Ind Harb,Ind. I-2 ... 5.65
Ind Harbor,Ind. Y1 ... 6.15
Lackawanna,N.Y. B2 ... 4.95
Los Angeles(2S) B3 ... 6.40
Seattle B3 ... 6.65
Sharon,Pa. S3 ... 5.65
So.SanFrancisco(2S) B3 ... 6.40
Sparrow Point,Md. B2 ... 5.70
Warren,O. R2 ... 5.65
Warton,W Va. W6 ... 6.10
Youngstown Y1 ... 6.15
Youngstown U5 ... 5.95

STRIP, Cold-Rolled High-Strength Low-Alloy
Cleveland J5 ... 7.45
Cleveland A7 ... 7.30
Dover,O. G6 ... 8.80
Ecorse,Mich. G5 ... 8.15
Lackawanna,N.Y. B2 ... 7.90
Sharon,Pa. S3 ... 7.30
Sparrows Point,Md. B2 ... 7.90
Warren,O. R2 ... 7.30
Warton,W Va. W6 ... 7.95
Youngstown Y1 ... 7.80

STRIP, Hot-Rolled Carbon
Ala.City,Ala.(2S) R2 ... 3.725
Alton,Ill. I1 ... 4.20
Ashland,Ky.(8S) A10 ... 3.725
Atlanta,A11 ... 4.275
Bessemer,Ala. T2 ... 3.725
Bridgeprt,Conn.(10) S15 ... 4.225
Buffalo(2S) B2 ... 3.725
Butler,Pa. A10 ... 3.725
Carnegie,Pa. S18 ... 4.00
Conshohocken,Pa. A3 ... 4.125
Detroit M1 ... 4.40
Ecorse,Mich. G5 ... 4.025
Fairfield,Ala. T2 ... 3.725
Fontana,Calif. K1 ... 4.075
Gary,Ind. U5 ... 3.725
Houston,Tex. S5 ... 4.90
Ind Harbor,Ind. I-2 Y1 3.725
Johnstown,Pa.(2S) B2 ... 3.725
KansasCity,Mo.(9) S5 ... 4.10
Lackawanna,N.Y.(3Z) B2 3.725
LosAngeles B3 ... 4.475
Milton,Pa. B6 ... 4.35
Minnequa,Colo. C10 ... 4.775
NewBritain(10) S15 ... 4.225
N.Tonawanda,N.Y. B11 3.725
Pittsburg,Calif. C11 ... 4.475
RiversdaleJll. A1 ... 3.725
SanFrancisco S7 ... 4.875
Seattle B3 ... 4.725
Seattle N14 ... 4.725
Sharon,Pa. S3 ... 4.225
So.Chicago,Ill. W14 ... 3.725
So.SanFrancisco B3 ... 4.475
SparrowsPoint,Md. B2 ... 3.725
Sterling,Ill. N1 ... 4.725
Torrance,Calif. C11 ... 4.475
Warren,O. R2 ... 3.725
Warton,W Va. W6 ... 3.825
We tLeechburg,Pa. A4 3.75
Youngstown U5, Y1 ... 3.725

STRIP, Hot-Rolled Alloy
Bridgeprt,Conn.(10) S15 6.05
Carnegie,Pa. S18 ... 5.85
Fontana,Calif. K1 ... 7.30
Gary,Ind. U5 ... 6.10
Houston,Tex. S5 ... 5.90
KansasCity,Mo. S5 ... 6.10
Midland,Pa. C18 ... 5.85
NewBritn,Conn.(10) S15 6.05
Sharon,Pa. S3 ... 6.45
Youngstown U5 ... 6.10

STRIP, Cold-Rolled Carbon
Anderson,Ind.(4G) G6 ..5.50
Berea,O. C7 ... 6.60
Bridgeprt,Conn.(10) S15 5.80
Butler,Pa. A10 ... 5.10
Cleveland A7, J5 ... 5.10
Dearborn,Mich. D3 ... 6.05
Detroit D2 ... 5.60
Detroit M1 ... 5.45
Dover,O.(4G) G6 ... 5.50
Ecorse,Mich. G5 ... 5.30
Follansbee,W Va. F4 ... 5.10
Fontana,Calif. K1 ... 5.75
FranklinPark,Ill.(4G)T6 5.35
Warren,O. R2 ... 5.70

STRIP, Cold-Finished, Spring Steel (Annealed)	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Berea,O. C7	...	6.80	7.40	9.35	11.65
Bridgeport,Conn.(10) S15	5.80	7.65	8.25	10.20	12.50
Bristol,Conn. W1			*8.55*	*10.50*	
Carnegie,Pa. S18	...	6.80	7.40	9.35	11.65
Cleveland A7	5.10	7.30	8.25	10.20	12.50
Dearborn,Mich. D3	6.05	7.90	8.50	...	...
Detroit D2	6.45	7.50	8.10	...	...
Dover,O. G6	*5.70*	*7.65*	*8.25*	*10.20*	*12.50*
FranklinPark,Ill. T6	5.45	7.45	8.40	10.35	12.65
Harrison,N.J. C18	...	...	7.70	9.65	11.95
Mattapan,Mass. T6	5.95	7.60	8.55	10.50	12.80
NewBritn.,Conn.(10) S15	5.80	7.65	8.25	10.20	12.50
NewCastle,Pa. B4	5.80	7.65	8.25	10.20	...
NewCastle,Pa. E5	5.50	6.80	7.40	9.35	11.65
NewHaven,Conn. D2	6.70	7.60	8.20	...	...
NewYork W3	...	7.95	8.55	10.50	12.80
Pawtucket,R.I. NS:					
Cleve.orPitts.Base		*7.65*	*8.25*	*10.20*	*12.50*
Worcester,Mass.Base	*6.30*	*7.95*	*8.55*	*10.50*	*12.80*
Sharon,Pa. S3	5.80	7.65	8.25	10.20	12.50
Trenton,N.J. R5		7.95	8.55	10.50	12.80
Wallingford,Conn. W2	*6.30*	*7.60*	*8.20*	*10.15*	*12.65*
Warton,W Va. W6	*5.80*	*7.65*	*8.25*	*10.20*	*12.50*
Worcester,Mass. T6	5.95	7.60	8.55	10.50	12.80
Worcester,Mass. T6 *	*5.95*	*7.60*	*8.55*	*10.50*	*12.80*
Youngstown C8	...	6.80	7.40	9.35	11.65

Spring Steel (Tempered)

Trenton,N.J. R5 (2S)	...	10.30	12.50	15.35
Harrison,N.J. C18	...	10.30	12.50	15.35
New York W3		*10.30**	*12.50**	*15.35**

* Plus $1.575 per 100 lb.

STRIP, Hot-Rolled Ingot Iron
Ashland,Ky.(8S) A10 ... 3.925
Warren,O. R2 ... 4.525

STRIP, Cold-Rolled Ingot Iron
Warren,O. R2 ... 5.70

Ind Harbor,Ind. I-2 ... 5.35
Lackawanna,N.Y. B2 ... 5.10
LosAngeles C1 ... 6.60
Mattapan,Mass. T6 ... 5.95
Middletown,O. A10 ... 5.10
NewBritain(10) S15 ... 5.80
New Castle,Pa. B4 ... 5.80
NewCastle,Pa.(4G) E5 ... 5.25
NewHaven,Conn. D2 ... 5.85
NewHaven,Conn. A7 ... 6.60
Pawtucket,R.I. R3 ... 6.45
Pawtucket,R.I.(2S) N8 ... 6.30
RiversdaleJll.(4G) A1 ... 5.35
Rome,N.Y. R6 ... 5.10
Sharon,Pa. S3 ... 5.80
SparrowsPoint,Md. B2 ... 5.10
Trenton,N.J. R5 ... 6.45
Wallingford,Conn. W2 ... 6.30
Warren,O.(4G) T5 ... 5.25
Warren,O. R2 ... 5.10
Warton,W Va. W6 ... 5.10
Youngstown C8 (4G) ... 5.25
Youngstown Y1 ... 5.10

STRIP, Electro Galvanized
Dover,O. G6 ... 5.50
Warren,O. T5 ... 5.25
Warton,W Va. W6 ... 5.10
Youngstown C8 ... 5.25

STRIP, Cold-Rolled Alloy Steel
Bridgeprt,Conn.(10)S15 12.15
Carnegie,Pa. S18 ... 10.60
Cleveland A7 ... 11.40
Dover,O. G6 ... 11.90
Fontana,Calif. K1 ... 13.95
Harrison,N.J. C18 ... 10.60
Midland,Pa. C18 ... 10.60
NewBritn,Conn.(10)S15 12.15
Pawtucket,R.I.(1S) N8 12.15
Pawtucket,R.I.(2S) N8 12.45
Sharon,Pa. S3 ... 12.00
Worcester,Mass. A7 ... 11.70
Youngstown C8 ... 10.60

STRIP, Hot-Rolled Ingot Iron
Ashland,Ky.(8S) A10 ... 3.925
Warren,O. R2 ... 4.525

STRIP, Cold-Rolled Ingot Iron
Warren,O. R2 ... 5.70

Key to Producers

A1 Acme Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A7 American Steel & Wire
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.
A13 American Cladmetals Co.

B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B6 Bolands Steel Corp.
B8 Brackenridge Alloy Steel
B11 Buffalo Bolt Co.
B12 Buffalo Steel Co.
B14 A. M. Byers Co.

C1 Calstrip Steel Corp.
C2 Calumet Steel Div. Borg-Warner Corp.
C4 Carpenter Steel Co.
C5 Central Iron & Steel Div. Barium Steel Corp.
C7 Cleve. Cold Rolling Mills
C8 Cold Metal Products Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Steel Corp.

D2 Detroit Steel Corp.
D3 Detroit Tube & Steel
D4 Disston & Sons, Henry
D6 Driver Harris Co.
D7 Dickson Weatherproof Nail Co.

E1 Eastern Gas&Fuel Assoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire Steel Corp.

F2 Firth Sterling Inc.
F3 Fitzsimons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div. Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire
G2 Globe Iron Co.
G3 Globe Steel Tubes Co.
G4 Granite City Steel Co.
G5 Great Lake Steel Corp.
G6 Greer Steel Co.
H1 Hanna Furnace Corp.
I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div. Borg-Warner Corp.
I-7 Indiana Steel & Wire Co.
J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.
K1 Kaiser Steel Corp.
K2 Keokuk Electro Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L5 Lockhart Iron & Steel
L6 Lone Star Steel Co.
L7 Lukens Steel Co.

TIGHT COOPERAGE HOOP

Atlanta, A11	4.45
Riverdale,Ill. J1	*4.90*
Sharon,Pa., S3	4.55
Youngstown, U5	4.15

WIRE, Tire Bead

Bartonville,Ill., K4	*11.81*
Monessen,Pa., P16 (43)	11.40
Roebling,N.J., R5 (43)	11.55

WIRE, Merchant Quality

(6 to 8 gage)	An'ld.	Galv.
Alabama City, R2	6.075	6.325
Aliquippa, J5	5.70	6.15
Atlanta, A11	6.325	6.675
Bartonville,Ill., K4	*6.075*	*6.48*
Buffalo, W12	4.85	
Cleveland, A7	6.075	6.45*
Crawfordsville,MS	*6.175*	*6.55*
Donora,Pa., A7	6.075	6.45*
Duluth,Minn., A7	6.075	6.45*
Fairfield,Ala., T2	6.075	6.45*
Houston,Tex., S5	6.10	6.55
Johnstown, B2	6.0.5	6.45
Joliet,Ill., A7	6.075	6.45*
Kansas City,Mo., S5	6.30	6.75
Kokomo,Ind., C16	*6.175*	*6.42*
Los Angeles, B3	7.025	
Minnequa,Colo., C10	*6.525*	*6.70*
Monessen,Pa., P7	5.95	6.40
Palmer, W12	5.15	
Pitts.,Calif., C11	7.025	7.40*
Plymouth, (18)/P12	6.475	
Rankin,Pa., A7	6.075	6.45*
So.Chicago,Ill., R2	6.075	6.325
So.S.Fran., C10	*7.025*	*7.40*
Sparrows Pt., B2	6.175	6.55
Sterling,Ill., (1)/N15	*6.075*	*6.48*
Struthers,O., Y1	6.075	6.475
Torrance,Calif., C11	7.025	
Worcester,Mass., A7	6.375	6.75*

*Based on 14-cent zinc.

ROPE WIRE (A)

(Add 4.7% on base and extras)

Alton,Ill., L1	9.15
Bartonville,Ill., K4	*8.98*
Buffalo, W12	8.55
Fostoria,O., S1	8.85
Johnstown,Pa., B2	8.55
Monessen,Pa., P16	8.53
Monessen,Pa., P7	8.80
Munice,Ind., I-7	8.75
Palmer,Mass., W12	8.85
Portsmouth,O., P12	8.55
Roebling,N.J., R5	8.85
Sparrows Pt., B2	8.65
Struthers,O., Y1	8.55
Worcester,Ja., T6	8.85

(A) Plow and Mild Plow, add 0.25c for improved plow.

WIRE, Manufacturers Bright, Low Carbon

Alabama City,Ala., R2	5.225
Aliquippa,Pa., J5 (42)	4.85
Atlanta, A11	5.475
Alton,Ill., L1	5.40
Bartonville,Ill., K4	*5.325*
Buffalo, W12	4.85
Chicago, W13	5.10
Cleveland, A7, C20	5.225
Crawfordsville,Ind., MS	*5.325*
Donora,Pa., A7	5.225
Duluth,Minn., A7	5.225
Fairfield,Ala., T2	5.225
Fostoria,O.(24) S1	*5.225*
Houston, S5	5.25
Johnstown,Pa., B2	5.225
Joliet,Ill., A7	5.225
Kansas City,Mo., S5	5.45
Kokomo,Ind., C16	*5.425*
Los Angeles, B3	6.175
Minnequa,Colo., C10	*5.475*
Monessen,Pa., P7	5.10
Palmer,Mass., W12	5.15
Pittsburg,Calif., C11	6.175
Portsmouth,O., P12	5.623
Rankin,Pa., A7	5.225
So.Chicago,Ill., R2	5.225
So.SanFrancisco, C10	*6.175*
Sparrows Point,Md., B2	5.325
Sterling,Ill.,(1) N15	*5.325*
Struthers,O., Y1	5.225
Torrance,Calif., C11	6.175
Waukegan,Ill., A7	5.225
Worcester,Mass., A7	5.525

WIRE, Cold-Rolled Flat

Anderson,Ind., G6	6.20
Buffalo, W12	6.35
Cleveland, A7 (43)	6.35
Crawfordsville,Ind., MS (44)	*6.35*
Dover,O., G6	6.20
Fostoria,O., S1 (43)	*6.00*
Kokomo,Ind., C16 (43)	*5.70*
Franklin,Park,Ill., T6 (43)	6.20
Massillon,O., R8 (43)	5.85
Monessen,Pa., P16 (43)	6.35
Monessen,Pa., P7	6.10
Pawtucket,R.I.(12)/N8 (43)	*6.85*
Trenton,N.J., R6 (43)	6.15
Worcester,Mass., A7 (43)	6.15
Worcester,Mass., W12	6.65
Worcester,Mass., T6 (43)	6.50

WIRE, Galv'd ACSR for Cores

Bartonville,Ill., K4	*8.90*
Monessen,Pa., P16 (43)	8.50
Muncie,Ind., I-7 (43)	8.70
Roebling,N.J., R5 (43)	8.80
Sparrows Pt., Md., B2 (43)	8.60
Johnstown,Pa., B2 (43)	8.50

WIRE (16 gage)

	Anl'd. Stone	Galv. Stone
(Add 4.7% on base and extras)		
Aliquippa,Pa., J5	10.15	12.15
Bartonville,(19) K4	*10.25*	
Cleveland, A7	10.25	12.00*
Crawfordsville, MS	*10.25*	*12.00*
Fostoria,O., S1	10.40	13.00
Johnstown, B2	10.25	12.15*
Kokomo, C16	10.25	11.95
Minnequa,Colo., C10	*10.40*	*12.425**
Palmer,Mass., W12	10.25	12.15
Pitts.,Calif., C11	10.60	12.35*
Sparrows Pt., B2	10.35	12.25*
Waukegan, A7	10.25	12.00*

*Based on 14-cent zinc.

WIRE, MB Spring, High Carbon

Aliquippa,Pa., J5	6.25
Alton,Ill., L1	6.55
Bartonville,Ill., K4	*6.64*
Buffalo, W12	6.25
Cleveland, A7 (43)	6.25
Donora,Pa., A7 (43)	6.25
Duluth,Minn., A7 (43)	6.25
Fostoria,O., S1 (43)	*6.25*
Johnstown,Pa., B2 (43)	6.25
Los Angeles, B3	7.20
Millbury,Mass.(12), N6	8.05
Minnequa,Colo., C10 (43)	*6.50*
Monessen,Pa., P7, P16	6.25
Muncie,Ind., I-7 (43)	6.45
Palmer,Mass., W12	6.55
Pittsburg,Calif., C11 (43)	7.20
Roebling,N.J., R5 (43)	6.55
Portsmouth,O., P12 (43)	6.25
So.Chicago,Ill., R2 (43)	6.25
So.SanFran., C10 (43)	*7.20*
Sparrows Pt.,Md., B2 (43)	6.35
Struthers,O., Y1 (43)	6.25
Trenton,N.J., A7 (43)	6.55
Waukegan,Ill., A7 (43)	6.25
Worcester,Mass., A7, T6, W12	6.55
Worcester,Mass., J4	6.75

WIRE, Fine & Weaving (8"Coils)

Bartonville,Ill., K4	*9.42*
Buffalo, W12	8.90
Chicago, W13	9.10
Cleveland, A7 (43)	8.90
Crawfordsville,Ind., MS (43)	*8.95*
Fostoria,O., S1 (43)	*8.90*
Johnstown,Pa., B2 (43)	8.90
Kokomo,Ind., C16 (43)	*8.90*
Monessen,Pa., P16 (43)	8.90
Muncie,Ind., I-7 (43)	9.10
Palmer,Mass., W12	9.20
Roebling,N.J., R5 (43)	9.20
Waukegan,Ill., A7 (43)	8.90
Worcstr,Mass., A7, T6 (43)	9.20

WIRE, Barbed

	Col.
Alabama City,Ala., R2	144
Aliquippa,Pa., J5	142
Atlanta, A11	149
Bartonville,Ill.(19) K4	*147*
Crawfordsville,Ind., MS	146
Donora,Pa., A7	147*
Duluth,Minn., A7	147*
Fairfield,Ala., T2	147*
Houston,Tex., S5	149
Johnstown,Pa., B2	146
Joliet,Ill., A7	147*
Kansas City,Mo., S5	153
Kokomo,Ind., C16	*149*
Minnequa,Colo., C10	*158**
Monessen,Pa., P7	146
Pittsburg,Calif., C11	167*
Rankin,Pa., A7	147*
So.Chicago,Ill., R2	144
So.SanFran.,Calif., C10	*167**
Sparrows Point,Md., B2	148
Sterling,Ill.(1) N15	*147*

*Based on 14-cent zinc

WIRE, Upholstery Spring

Aliquippa,Pa., J5	5.90
Alton,Ill., L1	6.50
Buffalo, W12	5.90
Cleveland, A7	6.275
Donora,Pa., A7	6.275
Duluth,Minn., A7	6.275
Johnstown,Pa., B2	6.275
Los Angeles, B3	7.225
Minnequa,Colo., C10	*6.525*
Monessen,Pa., P7	5.90
Monessen,Pa., P16 (42)	6.40
NewHaven,Conn., A7	6.575
Palmer,Mass., W12	6.20
Pittsburg,Calif., C11	7.225
Portsmouth,O., P12	6.275
Roebling,N.J., R5	6.575
So.Chicago,Ill., R2	6.275
So.SanFrancisco, C10	*7.225*
Sparrows Point,Md., B2	6.375
Torrance,Calif., C11	7.225
Trenton,N.J., A7	6.575
Waukegan,Ill., A7	6.275
Worcester,Mass., A7	6.575

WOVEN FENCE,9-15½ Ga.

	Col.
Alabama City,Ala., R2	135
Ala City,Ala., 17-19ga.R2	222
Aliquippa,Pa.9-14½ga.J5	131
Atlanta, A11	140
Bartonville,Ill.(19) K4	*138*
Crawfordsville,Ind., MS	*140*
Donora,Pa., A7	138*
Duluth,Minn., A7	138*
Fairfield,Ala., T2	138*
Houston,Tex., S5	139
Johnstown,Pa., B2	138
Johnstown,17ga.,6" B2	229
Joliet,Ill., A7	138*
Kansas City,Mo., S5	143
Kokomo,Ind., C16	*140*
Minnequa,Colo., C10	*146**
Monessen,Pa., P7	136
Pittsburg,Calif., C11	161*
Rankin,Pa., A7	138*
So.Chicago,Ill., R2	135
Pittsburg,Calif., C11	146
Portsmouth,O., P12	132
Rankin,Pa., A7	127
So.Chicago,Ill., R2	118
SparrowsPoint,Md., B2(44)	*120*
Sterling,Ill.(1) N15	*127*
Torrance,Calif., C11	147
Worcester,Mass., A7	133

*Based on 14-cent zinc

BALE TIES, Single Loop

	Col.
Alabama City,Ala., R2	132
Atlanta, A11	135
Bartonville,Ill.(19) K4	*132*
Crawfordsville,Ind., MS	134
Fostoria,O., S1 (43)	*8.90*
Johnstown,Pa., B2 (43)	8.90
Kokomo,Ind., C16 (43)	*8.90*
Monessen,Pa., P16 (43)	8.90
Muncie,Ind., I-7 (43)	9.10
Palmer,Mass., W12	9.20
Roebling,N.J., R5 (43)	9.20
Waukegan,Ill., A7 (43)	8.90
Worcstr,Mass., A7, T6 (43)	9.20

WIRE, Barbed

	Col.
Alabama City,Ala., R2	144
Aliquippa,Pa., J5	142
Atlanta, A11	149
Bartonville,Ill.(19) K4	*147*
Crawfordsville,Ind., MS	146
Donora,Pa., A7	147*
Duluth,Minn., A7	147*
Fairfield,Ala., T2	147*
Houston,Tex., S5	149
Johnstown,Pa., B2	146
Joliet,Ill., A7	147*
Kansas City,Mo., S5	153
Kokomo,Ind., C16	*149*
Minnequa,Colo., C10	*158**
Monessen,Pa., P7	146
Pittsburg,Calif., C11	167*
Rankin,Pa., A7	147*
So.Chicago,Ill., R2	144
So.SanFran.,Calif., C10	*167**
Sparrows Point,Md., B2	148
Sterling,Ill.(1) N15	*147*

FENCE POSTS

Chicago,Ill., C2	140
Duluth,Minn., A7	133
Franklin,Pa., F5	140
Huntington W.Va., W7	140
Johnstown,Pa., B2	148
Marion,O., F11	140
Minnequa,Colo., C10	*158*
Moline,Ill., R2 C10	136
So.Chicago,Ill., R2	140
Tonawanda,N.Y., B12	140
Williamsport,Pa., S19	*158*

TRACK BOLTS (20) Treated

Kansas City,Mo., S5	9.85
Lebanon,Pa.(31), B2	9.85
Minnequa,Colo., C10	9.85
Pittsburgh, O3, P14	9.85
Seattle, B3	10.35

AXLES

Ind Harbor,Ind., S13	5.65
Johnstown,Pa., B2	5.95

NAILS, Stock

To dealers & mfrs. (7)	Col.
Alabama City,Ala., R2 (44)	118
Aliquippa,Pa.(3), J5	118
Atlanta, A11	130
Bartonville,Ill.(19) K4	*127*
Chicago,Ill., W13	118
Cleveland, A9	125
Crawfordsville,Ind., MS	*130*
Donora,Pa., A7	127
Duluth,Minn., A7	127
Fairfield,Ala., T2	127
Galveston,Tex., D7	126
Houston,Tex., S5	126
Johnstown,Pa., B2 (44)	*118*
Joliet,Ill., A7	127
Kansas City,Mo., S5	130
Kokomo,Ind., C16	*129*
Minnequa,Colo., C10 (44)	123
Monessen,Pa., P7	124
Pittsburg,Calif., C11	146
Portsmouth,O., P12	132
Rankin,Pa., A7	127
So.Chicago,Ill., R2	118
SparrowsPoint,Md., B2(44)	*120*
Sterling,Ill.(1) N15	*127*
Torrance,Calif., C11	147
Worcester,Mass., A7	133

STAPLES, Polished, Stock

To dealers & mfrs. (7)	Col.
Alabama City,Ala., R2 (44)	118
Atlanta, A11	129
Bartonville,Ill. (19) K4	*127*
Donora,Pa., A7	126
Duluth,Minn., A7	126
Fairfield,Ala., T2	126
Johnstown,Pa., B2 (45)	*118*
Joliet,Ill., A7	126
Minnequa,Colo., C10 (45)	*123*
Pittsburg,Calif., C11	145
Portsmouth,O., P12	132
Rankin,Pa., A7	126
SparrowsPoint,Md.,B2(45)	*120*
Sterling,Ill.(1) N15	*126*
Torrance,Calif., C11	146
Worcester,Mass., A7	132

NAILS, Cut (100 lb keg)

To dealers (33)	
Conshohocken,Pa., A3	$7.80
Moline,Ill.,W.Va., W10	7.80

TIE PLATES

Fairfield,Ala., T2	4.775
Gary,Ind., U5	4.775
Ind Harbor,Ind., I-2	4.775
Lackawanna,N.Y., B2	4.775
Minnequa,Colo., C10	*$95.50**
Pittsburg,Calif., C11	4.925
Seattle, B3	4.925
Steelton,Pa., B2	4.775
Torrance,Calif., C11	4.925

*Per net ton.

JOINT BARS

Bessemer,Pa., U5	4.925
Fairfield,Ala., T2	4.925
Ind Harbor,Ind., I-2	4.925
Joliet,Ill., U5	4.925
Lackawanna,N.Y., B2	4.925
Minnequa,Colo., C10	4.925
Steelton,Pa., B2	4.925

STANDARD TRACK SPIKES

Ind Harbor,Ind., I-2, Y1	6.65
KansasCity,Mo., S5	6.40
Lebanon,Pa., B2	6.65
Minnequa,Colo., C10	6.65
Pittsburgh, J5	6.65
Seattle, B3	7.15
So.Chicago,Ill., R2	6.65
Struthers,O., Y1	6.65
Youngstown R2	6.65

RAILS	Std. No. 1	Std. No. 2	Std. All No. 2	Tee Rails 60 lb Under
Bessemer,Pa., U5	3.775	3.675	3.725	4.25
Ensley,Ala., T2	3.775	...	...	4.25
Fairfield,Ala., T2	...	...	...	4.25
Gary,Ind., U5	3.775	3.675	3.725	...
Huntington,W.Va., W7	...	...	...	5.00
Indiana Harbor,Ind., I-2	3.775	3.675	3.725	...
Johnstown,Pa., B2	...	...	...	(16)4.25
Lackawanna,N.Y., B2	3.775	3.675	...	4.25
Minnequa,Colo., C10	*$75.50**	*$71.50**		
Steelton,Pa., B2	3.775	3.675		
Williamsport,Pa., S19				*5.00*

* Per net ton.

TOOL STEEL

(Prices subject to 4.7% increase)

Grade	$ per lb
Regular Carbon	0.230
Extra Carbon	0.270
Special Carbon	0.325
Oil Hardening	0.350
5% Cr Hot Work	0.350
Hi-Carbon-Cr	0.635

Grade by Analysis

W	Cr	V	Co	Mo	
18	4	1			1.505
18	4	2			1.660
20	25	4	25	1.6	12.25
19	4	2	7		2.460
18	25	4	25	1	4.75
18	4	2	9	2	4.45-2.65
13.5	4	3			1.6025
⅜	3.25	0.5			1.01

W	Cr	V	Mo	
6.4	4.5	1.9	5	0.96-0.965
6	4	3	6	1.190
1.5	4	1	8.5	0.810

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, D4, F2, J3, L3, M14, S8, U4, V2 and V3.

Footnotes

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant.
(4) Reinforcing.
(6) Chicago or Birm. base.
(7) To jobbers, 3 cols. lower.
(8) 16 gage and heavier.
(9) 6 in. and narrower.
(10) Pittsburgh base.
(11) Cleveland & Pitts. base.
(12) Worcester, Mass. base.
(13) Add 0.50c for 17 Ga. & heavier.
(14) Also wide flange beams.
(15) 5a" annealed.
(16) 40 lb and under.
(17) Plate only.
(18) To dealers.
(19) Chicago & Pitts. base.
(20) 0.25c off for untreated.
(21) New Haven, Conn., base.
(22) Del. San Francisco Bay area.
(23) 20 Ga. 96" wide.
(24) Deduct 0.20c, finer than 15 Ga.
(25) Bar mill bands.
(26) Reinforcing, mill lengths to fabricators; to consumers, 5.60c.
(27) Bar mill sizes.
(28) Rerolled.
(29) Add $11.50 per ton.
(30) Sheared, add 0.35c for universal mill.
(31) Not annealed.
(32) Rd. or square edge.
(33) To jobbers, deduct 20c.
(34) 7-8/6" cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) 15 gage & lighter; 60" & narrower.
(38) 14 gage & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.
(41) 9 1/6c for cut lengths.
(42) Plus 0.375c per 100 lb.
(43) Plus 4.7% on base and extras.
(44) Plus 45c per 100 lb.
(45) Plus 40c per 100 lb.

Key to Producers

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M5 Medart Co.
M6 Mercer Tube & Mfg. Co.
M8 Mid-States Steel & Wire
M9 Midvale Co.
M12 Moltrup Steel Products
M13 Monarch Steel Co.
M14 McInnes Steel Co.

N2 National Supply Co.
N3 National Tube Div.
N4 Nelsen Steel & Wire Co.
N6 New Eng.-HighCarb.Wire
N8 Newman-Cro by Steel
N12 Niles Rolling Mill Div.
N14 Nrthwst. Steel Roll. Mills
N15 Northwestern S.&W. Co.
N16 New Delphos Mfg. Co.

O3 Oliver Iron & Steel Corp.
O4 Oregon Steel Mills

P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke & Chem.
P7 Pittsburgh Steel Co.
P9 Pittsburgh Tube Co.
P11 Pollak Steel Co.
P12 Portsmouth Division, Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., Amer. Chain & Cable
P17 Plymouth Steel Co.
R1 Reeves Steel & Mfg. Co.
R2 Republic Steel Corp.
R5 Rhode Island Steel Corp.
R6 Roebling's Sons, John A.
R7 Rotary Electric Steel Co.
R8 Reliance Div., Eaton Mfg.
S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S5 Sheffield Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S9 Sloss-Sheffield S.&I. Co.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S16 Struthers Iron & Steel
S17 Superior Drawn Steel Co.
S18 Superior Steel Corp.
S19 Sweet's Steel Co.
S20 Southern States Steel
S24 Seidelhuber Steel
T2 Tenn. Coal & Iron Div.
T3 Tenn. Prod. & Chem.
T4 Texas Steel Co.
T5 Thomas Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
U1 Ulster Iron Works
U4 Universal Cyclops Steel
U5 United States Steel Co.
V2 Vanadium-Alloys Steel
V3 Vulcan Crucible Steel Co.
W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Wa hburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W7 W. Va. Steel & Mfg. Co.
W8 West Auto.Mach.Screw
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div. International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.
Y1 Youngstown Sheet&Tube

Best way to support a home

Modern home builders are using steel more and more extensively in order to cut construction costs and make homes more liveable.

One example is the use of economical steel beams as structural supports, permitting longer spans without danger of sagging. This results in greater open areas, free of obstructions.

In many other ways steel is essential to the modern home. Steel pipe for plumbing, heating and ventilating. Steel for cabinets, hardware, casements, ornamental work, lath, studs, doors. In fact, it requires over 4 tons of steel to build the average modern 6 room home.

Through its diversified line of products, Kaiser Steel is helping to meet the needs of western builders . . . providing a nearby, dependable source for the West's great construction industry.

It's good business to do business with

Kaiser Steel

built to serve the West

PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES • plates • continuous weld pipe • electric weld pipe • tin plate • hot rolled strip • hot rolled sheet alloy bars • carbon bars • structural shapes • cold rolled strip • special bar sections • semi-finished steels • pig iron • coke oven by-products For details and specifications, write: **KAISER STEEL CORPORATION, LOS ANGELES, OAKLAND, SEATTLE, PORTLAND, HOUSTON, TULSA, NEW YORK**

STANDARD PIPE, T & C

BUTTWELD Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, % Black A	Black B	Black C	Galvanized D	Galvanized E	Galvanized F
⅛	5.5c	0.24	36.5	28.5	...	1.25	+0.75	...
¼	6.0	0.42	25	23	...	+1.75	+3.75	...
⅜	6.0	0.57	20	18	...	+5.5	+7.5	...
½	8.5	0.85	32.5	31.5	31.5	13.25	11.25	12.25
¾	11.5	1.14	35.5	33.5	34.5	17.25	15.25	16.25
1	17.0	1.68	38	36	37	20.75	18.75	19.75
1¼	23.0	2.28	38.5	36.5	37.5	20.5	18.5	19.5
1½	27.5	2.78	39	37	38	21.5	19.5	20.5
2	37	3.68	39.5	37.5	38.5	22	20	21
2½	58.5	5.82	40	38	39	21.75	19.75	20.75
3	76.5	7.62	40	38	39	21.75	19.75	20.75

Column A: Etna, Pa. N2 and 33⅓ on 3½" - 4"; Butler, Pa. ⅛-⅜": F6; Benwood, W. Va. 1 point lower on ⅛", 1⅜ points lower on ½", and 2¼ points lower on ¾"; W10, Sharon, Pa. M6, 1 point higher on ⅛", 2 points lower on ¾" and ⅜".

Following make ½" and larger: Lorain, O. N3; Youngstown R2 and 33⅓ on 3½" and 4"; Youngstown Y1, Fontana, Calif. K1 quotes 11½ points lower on ½" and larger continuous weld and 20.5% on 3½" and 4".

Columns B & E: Sparrows Point, Md. B2.

Columns C & F: Indiana Harbor, Ind., Y1; Alton, Ill., (Gary base) 2 points lower discount L1.

Column D: Butler, Pa. F6, ⅛-⅜"; Benwood, W. Va. W10, except plus ¼% on ⅛", plus 3½% on ¼", plus 7¾% on ⅜" and 14¼% on 3½" - 4".

Etna, Pa. N2 and 14¼% on 3½", 4". Following quote only on ½" and larger: Lorain, O. N3; Youngstown R2, and 14¼% on 3½" and 4"; Youngstown Y1; Fontana, Calif. K1 quotes 11½ points lower.

SEAMLESS AND ELECTRIC WELD Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, % Seamless Black A	Seamless Galv. B	Elec. Weld Black C	Elec. Weld Galv. D
2	37.0c	3.68	24	6	24	6
2½	58.5	5.82	27	8.25	27	8.25
3	76.5	7.62	27	8.25	27	8.25
3½	92.0	9.20	29	10.25	29	10.25
4	$1.09	10.89	29	10.25	29	10.25
5	1.48	14.81	33.75	15	33.75	15
6	1.92	19.18	33.75	15	33.75	15

Column A: Aliquippa J5; Ambridge N2; Lorain N3; Youngstown Y1.

Column B: Lorain N3; Youngstown Y1.

Columns C & D: Youngstown R2.

BOILER TUBES

Net base c.l. prices, dollars per 100 ft., mill; minimum wall thickness, cut lengths 10 to 24 ft, inclusive.

O.D. In.	B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
1	13	14.19	17.37	16.20	16.20
1¼	13	16.97	20.79	16.46	19.19
1½	13	18.22	22.31	18.19	21.41
1¾	13	20.35	24.92	20.69	24.35
2	13	22.81	27.94	23.19	27.28
2¼	13	25.69	31.46	25.84	30.42
2½	12	28.40	34.78	28.46	33.50
2½	12	31.28	38.31	31.19	36.67
2¾	12	33.87	41.49	33.05	38.86
3	12	35.78	43.93	34.69	40.82

CLAD STEELS

(Cents per pound; subject to 4.7% increase on base price and extras)

Cladding Stainless	Plates — Carbon Base 10%	Plates — Carbon Base 20%	Strip Cold-Rolled Carbon Base Both Sides	Sheets — Carbon Base 10%	Sheets — Carbon Base 20%	Cu Base Both Sides
302	....	....	....	19.75	26.24–27.50	77.00
304	25.00	29.50	....	24.50	27.50–27.77	77.00
309	30.50	35.00	....	....	....	....
310	36.50	41.00	....	....	....	144.00
316	29.50	34.00	....	26.00	35.92–36.50	....
317	34.50	39.00	....	....	....	....
318	33.50	38.00	....	....	....	....
321	26.50	31.00–32.00	....	23.00	33.00	111.00
347	27.50	32.00	....	24.00	33.50–33.83	130.00
405	21.25	27.75	....	....	....	....
410	20.75	27.25	....	....	....	....
Nickel	33.55	45.15	41.00	54.00	....	....
Inconel	41.23	54.18	....	....	....	165.00
Monel	34.93	46.28	....	....	....	....
Copper*	....	....	23.70†	29.65‡	44.00	....

* Deoxidized. † 20.20c for hot-rolled. ‡ 26.40c for hot-rolled. Production points for carbon base products: Stainless plates, sheet, Conshohocken, Pa. A3 and New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7 and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; nickel, copper-clad strip, Carnegie, Pa., S18. Production point for copper-base sheets is Carnegie, Pa. A13.

BOLTS, NUTS

CARRIAGE, MACHINE BOLTS
(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:
- ½-in. & smaller diam. 15
- ⅝-in. & ¾-in. 18.5
- ⅞-in. and larger 17.5

Longer than 6 in.: 14

All diams. 14

Lag bolts, all diams.:
- 6 in. and shorter 23
- over 6 in. long 21

Ribbed Necked Carriage 18.5

Blank 34

Plow 34

Step, Elevator, Tap and Sleigh Shoe 21

Tire bolts 21

Boiler & Fitting-Up Bolts 31

NUTS

	Reg. Hvy.
H.P. & C.P. Square:	
½-in. & smaller	15 15
⅝-in. & ⅞-in.	12 6.5
1-in.-1⅛-in.	9 1
1¼-in. & larger	7.5 1
H.P. Hex.:	
½-in. & smaller	26 22
⅝-in. & ⅞-in.	16.5 6.5
1-in.-1⅛-in.	12 2
1¼-in. & larger	8.5 2
C. P. Hex.:	
½-in. & smaller	26 22
⅝-in. & ⅞-in.	23 17.5
1-in. & 1⅛-in.	19.5 12
1¼-in. & larger	12 6.5

SEMIFINISHED NUTS
American Standard
(Per cent off list for less than case or keg quantities)

	Reg. Hvy.	Light
½-in. & smaller	35 28.5	35
⅝-in. to ⅞-in.	29.5 22	28.5
1-in. to 1½-in.	24 15	26
1¾-in. & larger	13 8.5	

STEEL STOVE BOLTS
(F.o.b. plant, per cent off list in packages)

Plain finish ..... 48 & 10

Plated finishes ..... 31 & 10

HEXAGON CAP SCREWS
(1020 steel; packaged; per cent off list)

6 in. or shorter:
- ⅝-in. & smaller 42
- ⅝-in. through 1 in. 34

Longer than 6 in.:
- ⅝-in. & smaller 26
- ⅞-in. through 1 in. 4

SQUARE HEAD SET SCREWS
(Packaged; per cent off list)

1 in. diam x 6 in. and shorter 38

1 in. and smaller diam. x over 6 in. 26

HEADLESS SET SCREWS
(Packaged; per cent off list)

No. 10 and smaller 35

¼-in. diam. & larger 16

N.F. thread, all diams. 10

RIVETS

F.o.b. midwestern plants

Structural ½-in., larger 7.85c

⅞-in. under ..... 36 off

WASHERS, WROUGHT

F.o.b. shipping point, to jobbers—List to list-plus-$1

FLUORSPAR

Metallurgical grade, f.o.b. shipping point, in Ill., Ky., net tons, carloads, effective CaF₂ content 70%, $43; 60%, $40.

Imported, net ton, duty paid, metallurgical grade, $33-$35.

ELECTRODES

(Threaded, with nipples, unboxed f.o.b. plant)

GRAPHITE

Inches Diam.	Length	Cents per lb
17.18.20	60.72	17.85
8 to 16	48,60,72	17.85
7	48,60	19.57
6	48,60	20.95

CARBON

35.40	110	8.03
30	65,84,110	8.03
24	72 to 104	8.03
17 to 20	34,90	8.03

STAINLESS STEEL

(Add 4.7% on base price and extras)

Type	Sheets	C.R. Strip	Bars Wire Structurals
301	41.00	34.00	31.25
302	41.25	36.75	31.50
303	43.25	40.25	34.00
304	43.25	38.75	33.00
309	56.00	55.00	44.75
316	57.00	59.00	49.25
321	49.25	48.25	37.00
347	53.75	52.25	41.50
410	36.50	30.50	25.75
416	37.00	37.00	26.25
420	44.00	47.00	31.25
430	39.00	31.00	26.25
501	27.50	26.00	14.25
502	28.50	27.00	15.25

Bait. Types 301-347 and 430 sheets, except 303 and 309 E2.

Brackenridge, Pa., sheets A4 quotes slight variations on Types 301-347.

Bridgeville, Pa., bars, wire, sheets & strip U4.

Butler, Pa., sheets and strip except Types 303, 309, 416, 420, 501 & 502, A10.

Carnegie, Pa., sheets and strip except Types 303, 416, 501 & 502 S18.

Cleveland, strip A7.

Detroit, strip M1 quotes 34.00c on Type 301; 36.50c, 302; 38.50c, 304; 58.50c, 316; 52.00c, 347; 30.50c, 410; 31.00c, 430.

Dunkirk, N. Y., bars, wire A4 quotes slight variations on Types 301-347.

Duquesne, Pa., bars U5.

Fort Wayne, Ind., bars and wire, except Types 501 & 502 J6 quotes slight variations on Types 301-347.

Gary, Ind., sheets except Type 416 U5.

Harrison, N. J., strip and wire C18.

Massillon, O., all items, R3.

McKeesport, Pa., strip, Type 410; bars & wire, Types 410 through 430 and 31.25c on Type 302, 33.75c on 303, 32.75c on 304, 48.75c on 316, 36.75c on 321, 41.25c on 347 F2.

McKeesport, Pa., bars, sheets except Type 416 U5.

Middletown, O., sheets and strip except Types 303, 416, 420, 501 and 502 A10.

Midland, sheets & strip C18.

Munhall, Pa., bars U5.

Muncie, Ind., wire I-7 quotes types 302, 304, 430.

Pittsburgh, sheets C18.

Reading, Pa., strip except 34.25c on Type 301 and 56.00c on 309; bars, except 31.50c on Type 301 and 45.25c on 309 C4.

Sharon, Pa., strip, except Types 303, 309, 416, 501, 502 and 34.25c on Type 301 S3.

So. Chicago, Ill., bars & structurals U5.

Syracuse, N. Y., bars, wire & structurals C18.

Titusville, Pa., bars U4.

Wallingford, Conn., strip W2 quotes 0.25c higher.

Washington, Pa., bars, sheets & strip, except 0.25c higher on Type 301 J3.

Washington, Pa., Types 301 through 347 sheets & strip except 303, 309; 316 sheets 62.00c, strip 64.00c W4

Watervliet, N. Y., structurals & bars A4 quotes variations on Types 301-347.

Waukegan, bars & wire A7.

West Leechburg, Pa., strip, A4 quotes slight variations on Types 301-347.

Youngstown, strip except Types 303, 309, 316, 416, 501 and 502 and 34.25c on Type 301 C8.

COAL CHEMICALS

Spot, cents per gallon, ovens

Pure benzol 30.00-35.00

Toluol, one deg.. 26.00-33.00

Industrial xylol .. 25.00-33.50

Per ton bulk ovens

Sulphate of ammonia $32-$45

Cents per pound, ovens

Phenol, 40 (carlots, non-returnable drums) 17.25

METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted.)

Sponge iron:	Cents
98+% Fe, annealed	18.00
Unannealed	14.50
Swedish, c.l.f. New York, in bags	8.85-9.95
Electrolytic iron:	
Annealed, 99.5% Fe	42.50
Unannealed (99 + % Fe)	36.50
Unannealed, 99 + % Fe (minus 325 mesh)	53.50
Powder Flakes	48.50
Carbonyl iron:	
97.9-99.8% size 5 to 10 microns	83.00-148.00
Aluminum:	
Carlots, freight allowed	31.00
Atomized, 500 lb drums, freight allowed	33.00
Antimony, 500 lb lots	71.00
Brass, 20-ton lots	28.25-32.00
Bronze, 10-ton lots	51.25-60.00
Phosphor-Copper, 20-ton lots	80.00
Copper:	
Electrolytic	37.25
Reduced	34.75
Lead	22.50
Magnesium	75.00-85.00
Manganese:	
Minus 100 mesh	57.00
Minus 35 mesh	52.00
Minus 200 mesh	62.00
Nickel unannealed	84.00
Nickel-Silver 5-ton lots	44.50
Silicon	38.50
Solder (plus cost of metal)	8.50
Stainless Steel, 302	83.00
Zinc, 10-ton lots	20.00-28.00
Tungsten	Dollars
Melting grade, 99% 60 to 200 mesh:	
1000 lb and over	5.85
Less than 1000 lb	6.00
Molybdenum:	
99.9% minus 200 mesh	3.34
Chromium, electrolytic 99% Cr min.	3.50

METALLURGICAL COKE

Price net ton

BEEHIVE OVENS

Connellsvil.fur.	$14.50-15.00
Connellsvil.fdy.	16.50-17.50
New River foundry	20.50
Wise county, foundry	15.95
Wise county, furnace	15.20

OVEN FOUNDRY COKE

Kearney, N. J. ovens	$23.75
Everett, Mass., ovens	
New England, del.	*24.50
Chicago ovens	23.00
Chicago, del.	24.50
Terre Haute, ovens	22.50
Milwaukee, ovens	23.75
Indianapolis ovens	23.75
Chicago, del.	26.62
Cincinnati, del.	25.88
Detroit, del.	27.08
Ironton, O., ovens	22.50
Cincinnati, del.	25.13
Painesville, O., ovens	24.00
Cleveland, del.	25.82
Erie, Pa., ovens	23.50
Birmingham, ovens	20.50
Cincinnati, del.	25.23
Philadelphia, ovens	22.70
Nevillelsland,Pa.,ovens	23.00
Swedeland, Pa., ovens	23.60
St. Louis, ovens	
St. Louis, del.	25.40
Portsmouth, O., ovens	22.50
Cincinnati, del.	25.13
Detroit, ovens	24.00
Detroit, del.	25.00
Buffalo, del.	26.58
Flint, del.	26.73
Pontiac, del.	25.56
Saginaw del.	27.06

*Or within $4.55 freight zone from works.

PRECISION-MADE...PERFORMANCE-ENGINEERED ...SERVICE-PROVED

MIDVALE FORGED STEEL SHAFTS SERVE INDUSTRY ACROSS THE NATION

Whether it is mammoth shafts for turbines or generators, or extra heavy shafts of any description, Midvale craftsmanship means top performance. Industry after industry, from coast to coast, has learned to rely on Midvale when specifications are exacting and the job is big.

Whatever your needs for heavy custom-built equipment—whether shafts, rolls, pressure vessels, or any other type of forging—Midvale is your guarantee of precision and performance. For at Midvale, modern equipment and quality control are combined with years of skill and experience to produce the finest, most dependable heavy steel forgings industry can produce.

When heavy forgings must meet rigid specification, rely on Midvale precision craftsmanship.

THE MIDVALE COMPANY

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Offices: New York, Chicago, Pittsburgh, Washington
Cleveland, San Francisco

MIDVALE

Custom Steel Makers to Industry

PRODUCERS OF FORGINGS, ROLLS, RINGS, CORROSION AND HEAT RESISTING CASTINGS

WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound, for delivery within switching limits, subject to extras.)

	SHEETS			STRIP		BARS			Standard Structural Shapes	PLATES	
	H.R. 18 Ga. Heavier*	C.R.	Gal. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.	H.R. Alloy 4140††*		Carbon	Floor
New York (city)	6.65	7.57	8.77	7.05	...	6.86	7.83	11.34‡	6.69	6.90	8.31
Jersey City (c'try)	6.35	7.27	8.47	6.75	...	6.56	7.53	9.54	6.39	6.60	8.01
Boston (city)	6.71	7.55	8.74	6.75	...	6.48	7.74‡	10.80‡	6.76	7.00	8.18
Boston (c'try)	6.51	7.35	8.54	6.55	...	6.28	7.54‡	10.60‡	6.56	6.80	7.98
Phila. (city)	6.35	7.38	8.60	6.70	8.55	6.67	7.69	11.02	6.42	6.49	7.62
Phila. (c'try)	6.10	7.12	8.35	6.45	8.30	6.42	7.44	10.77	6.17	6.24	7.36
Balt. (city)	6.01	7.37	8.62	6.62	...	6.61	7.62‡	11.37	6.52	6.67	7.90
Balt. (c'try)	5.81	7.17	8.42	6.42	...	6.41	7.42‡	11.17	6.33	6.47	7.70
Norfolk, Va.	7.60	...	...	...	...	6.44	8.45	...	7.25	6.64	7.33
Richmond, Va.	6.14	6.95	8.68	6.53	...	6.30	7.38	...	6.58	6.68	7.80
Wash. (w'hse)	6.31	7.61	8.90	6.89	...	6.99	7.78	...	6.93	6.93	8.17
Buffalo (del.)	6.00	6.85	8.66	6.41	...	6.10	7.68‡	12.27	6.28	6.50	7.87
Buffalo (w'hse)	5.80	6.65	8.46	6.21	...	5.90	7.48‡	12.07	6.08	6.30	7.67
Pitts. (w'hse)	5.80	...	8.45	5.97	...	5.83	6.90	10.65	5.95	6.12	7.18
Detroit (w'hse)	6.00-6.20	6.71-7.04	8.34	6.03-7.05	7.70-8.03	6.12-6.34	6.975-7.41	10.92	6.42-6.65	6.19-6.65	7.52-7.72
Cleveland (del.)	6.00	6.85	8.39	6.20	...	6.09	7.19‡	10.99	6.53	6.37	7.72
Cleve. (w'hse)	5.80	6.65	8.19	6.00	...	5.89	6.99‡	10.79	6.33	6.17	7.52
Cincin. (city)	6.28	6.87	8.67	6.36	...	6.28	7.31	12.22	6.57	6.62	7.75
Chicago (city)	6.03	6.88	8.25	6.03	...	6.11	7.12‡	10.85	6.15	6.22	7.38
Chicago (w'hse)	5.83	6.68	8.05	5.83	...	5.91	6.92‡	10.65	5.95	6.02	7.18
Milwau. (city)	6.17	7.08	8.42	6.51	...	6.20	7.30‡	10.02	6.32	6.37	7.55
Milwau. (c'try)	5.97	6.88	7.22	6.31	...	6.00	7.10‡	10.82	6.12	6.17	7.35
St. Louis (del.)	6.30	7.10	8.55	6.68	...	6.33	7.40‡	11.15	6.55	6.60	7.78
St. L. (w'hse)	6.10	6.95	8.35	6.48	...	6.13	7.20‡	10.95	6.35	6.40	7.58
Birm'hm (city)	5.95	6.80	7.85§	5.95	...	5.95	8.40	...	6.10	6.25	8.65
Birm'hm (w'hse)	5.80	6.65	7.70§	5.80	...	5.80	8.40	...	5.95	6.10	8.65
Los Ang. (city)	6.78	8.65§	9.95	6.94	...	6.77	8.84	12.25	6.84	6.91	9.10
L. A. (w'hse)	6.58	8.45§	9.75	6.74	...	6.57	8.64	12.05	6.64	6.71	8.90
Seattle-Tacoma	7.43	9.26	9.55	7.90	...	7.40	9.56	10.50‖	6.83	7.24	9.07
SanFran. (w'hse)	6.85	8.20§	9.55§	6.80	...	6.65	8.70	12.05	6.50	6.55	8.90

* Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ add 25-cent special bar quality extra; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; ‖—500 to 1499 lb; §—450 to 1499 lb.; ¶—1000 to 1999 lb.

Ores

Lake Superior Iron Ore

(1952 prices not established; 1951 contract prices follow.)

Gross ton, 51½% (natural), lower lake ports.

After adjustment for analysis, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in applicable lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.

Old range bessemer	$8.70
Old range nonbessemer	8.55
Mesabi bessemer	8.45
Mesabi nonbessemer	8.30
High phosphorus	8.30

Eastern Local Ore

Cents per unit del., E. Pa.

Foundry and basic 56-62% concentrates contract	17.00

Foreign Ore

Cents per unit, c.i.f. Atlantic ports.

Swedish basic, 60 to 68%:	
Spot	nom.
Long-term contract	24.00
North African hematites (spot)	26.00-28.00
Brazilian iron ore, 68-69% (spot)	32.00

Tungsten Ore

Net ton unit, duty paid

Foreign wolframite and scheelite, per net ton unit	$65.00
Domestic scheelite, mines	65.00

Manganese Ore

Manganese, 48% nearby, $1.18-1.22 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 85c-87c.

Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African

48% 2.8:1	$39.00-42.00
48% 3:1	44.00-45.00
48% no ratio	30.00-32.00

South African Transvaal

44% no ratio	$27.00-28.00
48% no ratio	34.00-35.00

Brazilian

44% 25:1 lump	nom.

Rhodesian

45% no ratio	$29.00
48% no ratio	31.50-32.00
48% 3:1 lump	50.00-51.00

Domestic—rail nearest seller

48% 3:1	$39.00

Molybdenum

Sulphide concentrates per lb. molybdenum content, mines	$1.00

REFRACTORIES

(Ceiling prices, effective Feb. 12, 1952, per 1000 units)

Fire Clay Brick

High-Heat Duty: Pueblo, Colo., $85; Ashland, Grahn, Hayward, Hitchins, Halderman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lochhaven, Lumber, Orviston, West Decatur, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parral, Portsmouth, O., Ottawa, Ill., Stevens Pottery, Ga., Woodbridge, N. J., $94.60; Salina, O., $99.60; Niles, O., $104; Los Angeles, Pittsburg, Calif., $126.

Silica Brick

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Portsmouth, O., $94.60; Hays, Pa., $100.10; Niles, O., $102; E. Chicago, Ind., Joliet, Rockdale, Ill., $104.50; Cutler, Utah, $111; Los Angeles, $117.

Insulating Fire Brick

2300° *F:* Massillon, O., $170; Clearfield, Pa., $171; Augusta, Ga., Beaver Falls, Zelienople, Pa., Mexico, Mo., $178.

Ladle Brick

Dry Pressed: Bessemer, Ala., $61.60; Aisey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Pa., Wellsville, O., $66; Mexico, Mo., $70; Clearfield, Pa., Portsmouth, O., $79.20; Perla, Ark., $88; Los Angeles, $105; Pittsburg, Calif., $106.

Sleeves

Reesdale, Pa., $121; Johnstown, Pa., $121.30; Clearfield, Pa., $128.70; St. Louis, $131.45; Athens, Tex., $134.20.

Nozzles

Reesdale, Pa., $193.60; Johnstown, Pa., $198.55; Clearfield, Pa., $209; St. Louis, $213.95; Athens, Tex., $214.50.

Runners

Reesdale, Pa., $150.70; Johnstown, Pa., $154; Clearfield, Pa., $160; St. Louis, $162.25; Athens, Tex., $166.10.

High-Alumina Brick

50 *Per Cent:* Clearfield, Pa., St. Louis, Mexico, Mo., $158.40; Danville, Ill., $161.40.

60 *Per cent:* St. Louis, Mexico, Vandalia, Mo., $200.20; Danville, Ill., $202.20.

70 *Per cent:* St. Louis, Mexico, Vandalia, Mo., $233.20; Danville, Ill., $236.20; Clearfield, Pa., $240.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 20.0c per lb of alloy, carload packed 20.8c, ton lot 22.3c, less ton 23.3c. Delivered. Spot add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 10.0c per lb of alloy, carload packed 20.2c, ton lot 22.1c, less ton 23.6c. Deld. Spot add 0.25c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 30-43%, Fe 40-45%, C 0.20% max.). Contract, c.l. lump, bulk 7.0c per lb of alloy, c.l. packed 7.75c, ton lot 8.5c, less ton 9.35c. Delivered. Spot add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract, carload, lump, packed 20.25c per lb of alloy, ton lot 21c, less ton 22.25c. Freight allowed. Spot add 0.25c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 14.50c per lb of briquet, carload packed 15.2c, ton 16.0c, less ton 16.9c. Deld. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload bulk 12.45c per lb of briquet, c.l. packaged 13.25c, ton lot 14.05c, less ton 14.95c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 12.65c per lb of briquet, c.l. packed 13.45c, ton lot 14.25c, less ton 15.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 6.95c per lb of briquet, c.l. packed 7.75c, ton lot 8.85c, less ton 9.45c. Delivered. Spot, add 0.25c.

(Small size—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 7.1c, c.l. packed 7.9c, ton lot 8.7c, less ton 9.6c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each) $1.14 per pound of Mo contained, f.o.b. Langeloth, Pa.

Note: Current prices on chromium, silicon, vanadium, boron and tungsten alloys appeared on page 137, Sept. 1 issue; manganese and titanium alloys and "other" ferroalloys, page 161, Aug. 18.

CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952

STEELMAKING SCRAP COMPOSITE

Sept. 4	$43.00
Aug. 28	43.00
Aug., 1952	43.00
Sept., 1951	44.00
Sept., 1947	37.83

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

Basing point ceiling prices per gross ton from which maximum shipping prices are computed on scrap of dealer and industrial origin, and from which ceiling on line and ceiling delivered prices are computed on scrap of railroad origin.

Basing Point	Grade 1 No. 1 Bundles Dealer, Industrial	No. 1 Heavy Melt Railroad
Alabama City, Ala.	$39.00	$41.00
Ashland, Ky.	42.00	44.00
Atlanta, Ga.	39.00	41.00
Bethlehem, Pa.	42.00	44.00
Birmingham, Ala.	39.00	41.00
Brackenridge, Pa.	44.00	46.00
Buffalo, N. Y.	43.00	45.00
Butler, Pa.	44.00	46.00
Canton, O.	44.00	46.00
Chicago, Ill.	42.50	44.50
Cincinnati, O.	43.00	45.00
Claymont, Del.	42.50	44.50
Cleveland, O.	43.00	45.00
Coatesville, Pa.	42.50	44.50
Conshohocken, Pa.	42.50	44.50
Detroit, Mich.	41.15	43.15
Duluth, Minn.	40.00	42.00
Harrisburg, Pa.	42.50	44.50
Houston, Tex.	37.00	39.00
Johnstown, Pa.	44.00	46.00
Kansas City, Mo.	39.50	41.50
Kokomo, Ind.	42.00	44.00
Los Angeles	35.00	37.00
Middletown, O.	43.00	45.00
Midland, Pa.	44.00	46.00
Minnequa, Colo.	35.00	37.00
Monessen, Pa.	44.00	46.00
Phoenixville, Pa.	42.50	44.50
Pittsburg, Calif.	35.00	37.00
Pittsburgh, Pa.	44.00	46.00
Portland, Oreg.	35.00	37.00
Portsmouth, O.	42.00	44.00
St. Louis, Mo.	41.00	43.00
San Francisco	35.00	37.00
Seattle, Wash.	35.00	37.00
Sharon, Pa.	44.00	46.00
Sparrows Pt., Md.	42.00	44.00
Steubenville, O.	44.00	46.00
Warren, O.	44.00	46.00
Weirton, W. Va.	44.00	46.00
Youngstown, O.	44.00	46.00

Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

O-H and Blast Furnace Grade	
2 No. 1 Bushelling	Base
3 No. 1 Heavy Melting	—$1.00
4 No. 2 Heavy Melting	— 1.00
5 No. 2 Bundles	— 1.00
6 Machine Shop Turnings	—10.00
7 Mixed Borings and Short Turnings	— 6.00
8 Shoveling Turnings	— 6.00
9 No. 2 Bushelling	+ 4.00
10 Cast Iron Borings	— 6.00
Elec. Furnace and Fdry. Grades	
11 Billet, Bloom & Forge Crops	+ 7.50
12 Bar Crops & Plate	+ 5.00
13 Cast Steel	+ 5.00
14 Punchings & Plate Scrap	+ 2.50
15 Electric Furnace Bundles	+ 2.00
Cut Structurals & Plate	
16 3 feet and under	+ 3.00
17 2 feet and under	+ 5.00
18 1 foot and under	+ 6.00
19 Briquetted Cast Iron Borings	Base
Foundry Steel	
20 2 feet and under	Base
21 1 foot and under	+ 2.00
22 Springs and Crankshafts	+ 1.00
23 Axle Free Turnings	— 3.00
24 Heavy Turnings	— 1.00
25 Briquetted Turnings	Base
26 No. 1 Chemical Borings	— 5.00
27 No. 2 Chemical Borings	+ 6.00
28 Wrought Iron	+10.00
29 Shafting	+10.00
31 Old Tin & Terne Plated Bundles	—10.00

Unprepared Grades

When compressed constitutes

32 No. 1 Bundles	— 6.00
33 No. 2 Bundles	— 9.00
34 Other than material suitable for hydraulic compression	— 8.00

Restrictions on Use

(1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for grades 12 and 8, respectively.

(2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes and in the case of Grade 27, for briquetting and direct charging to an electric furnace; otherwise ceiling prices shall not exceed price established for Grade 10.

(3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.

(4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and acid open-hearth furnaces or foundries, or in basic O-H or blast furnace under NPA allocation of OPS authorization.

(5) Prices for Grade 29 may be charged only when sold for forging or retolling purposes.

Differentials from Base

Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap:

2 No. 2 Heavy Melting Steel	—$2.00
3 No. 2 Steel Wheel	Base
4 Hollow Bored Axles and loco. axles with keyways between the wheelseats	Base
5 No. 1 Bushelling	— 3.50
6 No. 1 Turnings	— 3.00
7 No. 2 Turnings, Drillings & Borings	—12.00
8 No. 2 Cast Steel and uncut wheelcenters	— 6.00
9 Uncut Frogs, Switches	Base
10 Flues, Tubes & Pipes	— 8.00
11 Structural, Wrought Iron and/or steel, uncut	— 6.00
12 Destroyed Steel Cars	— 8.00
13 No. 1 Sheet Scrap	— 9.50
14 Scrap Rails, Random Lengths	+ 2.00
15 Rerolling Rails	+ 7.00
Cut Rails	
16 3 feet and under	+ 5.00
17 2 feet and under	+ 6.00
18 1 foot and under	+ 8.00
19 Cast Steel, No. 1	+ 3.00
20 Uncut Tires	+ 2.00
21 Cut Tires	+ 5.00
Bolsters & Side Frames	
22 Uncut	Base
23 Cut	+ 3.00
24 Angles, Splice Bars & Tie Plates	+ 5.00
25 Solid Steel Axles	+ 12.00
26 Steel Wheels, No. 3 oversize	Base
27 Steel Wheels, No. 3	+ 5.00
28 Spring Steel	+ 5.00
29 Couplers & Knuckles	+ 5.00
30 Wrought Iron	+ 8.00
31 Fireboxes	+ 8.00
32 Boilers	+ 6.00
33 No. 2 Sheet Scrap	—13.00
34 Carsides, Doors, Car Ends, cut apart	— 6.00
35 Unassorted Iron & Steel	— 6.00
36 Unprepared scrap, not suitable for hydraulic compression	— 8.00

Preparation Charges

Ceiling fees per gross ton which may be charged for intransit preparation of any grade of steel scrap of dealer or industrial origin, authorized by OPS are:

(1) For preparing into Grades No. 3, No. 4 or No. 2, $8.

(2) For hydraulically compressing Grade No. 1 $6 per ton; Grade No. 5, $8.

(3) For crushing Grade No. 6, $3.

(4) For preparing into:
Grade No. 25, $6.

(5) Grade No. 19, $6.

(6) Grades No. 12, No. 13, No. 14, No. 16, or No. 20, $10.

(7) Grade No. 17 or No. 21, $11.

(8) Grade No. 18, $12.

(9) For hydraulically compressing Grade No. 15, $8.

(10) For preparing into Grade No. 28, $10.

Ceiling fees per gross ton which may be charged for intransit preparation of any grade of steel scrap of railroad origin shall be:

(1) For preparing into Grade No. 1 and Grade No. 2, $8.

(2) For hydraulically compressing Grade No. 13, $6.

For preparing into:

(3) Grade No. 16, $4.

(4) Grade No. 17, $5.

(5) Grade No. 18, $7.

(6) Grade No. 21, $4.

(7) Grade No. 23, $4.

Ceiling fees per gross ton which may be charged for intransit preparation of cast iron are limited to:

(1) For preparing Grade No. 8 into Grade No. 7, $9.

(2) For preparing Grade No. 3 into Grade No. 11, $7.

(3) For preparing Grade No. 3 into Grade No. 1, $4.

CAST IRON SCRAP

Ceiling price per gross ton for following grades shall be f.o.b. shipping point:

Cast Iron:

1 No. 1 (Cupola)	$49.00
2 No. 2 (Charging Box)	47.00
3 No. 3 (Hvy. Breakable)	45.00
4 No. 4 (Burnt Cast)	41.00
5 Cast Iron Brake Shoes	41.00
6 Stove Plate	46.00
7 Clean Auto Cast	52.00
8 Unstripped Motor Blocks	43.00
9 Wheels, No. 1	47.00
10 Malleable	55.00
11 Drop broken machinery	52.00

OPEN MARKET

(Delivered prices include broker's commission.)

Birmingham
(Delivered)

No. 1 cupola cast	$42.00
Stove plate	37.00
Charging box cast	39.00-40.00
Heavy breakable	36.00-37.00
Drop broken machinery	42.00-43.00
Unstripped motor blocks	35.00-36.00

Boston
(F.o.b. shipping point)

No. 1 cupola cast	40.00
Heavy breakable	36.00
Stove plate	34.00-35.00
Unstripped motor blocks	30.00

Buffalo
(Delivered)

No. 1 heavy melting	43.00
No. 2 heavy melting	43.00
No. 1 bundles	44.00
No. 1 bushelling	44.00
No. 2 bundles	43.00
Machine shop turnings	34.00
Mixed borings, turnings	38.00
Cast iron borings	38.00
Short shoveling turnings	38.00
No. 1 cupola cast	45.00-46.00
No. 1 machinery cast	46.50-47.50

Chicago
(Delivered)

No. 2 heavy melting	42.50
No. 2 bundles	42.50
Machine shop turnings	33.50
Mixed borings, turnings	37.50
Shoveling turnings	37.50
Cast iron borings	37.50
No. 1 cupola cast	49.00-51.00
Charging box cast	47.00-48.00
Heavy breakable	42.00-43.00
Burnt cast	41.00-42.00
Cast iron brake shoes	42.00-43.00
Stove plate	45.00-47.00
Clean auto cast	55.00-56.00
Unstripped motor blocks	39.00-40.00
Malleable	60.00-61.00
Drop broken machinery	55.00-57.00

Cleveland
(Delivered)

No. 1 heavy melting	43.00
No. 2 heavy melting	43.00
No. 1 bundles	44.00
No. 2 bundles	43.00
Machine shop turnings	34.00
Mixed borings, turnings	38.00
Shoveling turnings	38.00
Cast iron borings	38.00
(F.o.b. shipping point)	
No. 1 cupola	49.00
Charging box cast	47.00
Burnt cast	41.00
Stove plate	46.00
Clean auto cast	52.00
Unstripped motor blocks	43.00
Malleable	55.00
Drop broken machinery	52.00

Detroit
(F.o.b. shipping point)

No. 1 cupola cast	49.00†
Heavy breakable	45.00†
Clean auto cast	52.00†
Unstripped motor blocks	43.00†
Drop broken machinery	52.00†
Charging box cast	47.00†

†Ceiling price.

Los Angeles
(Delivered)

No. 2 bundles	29.00
No. 1 cupola cast	42.00-44.00

New York
(Brokers' buying prices)

No. 2 heavy melting	35.99
Mixed borings, turnings	31.99
Machine shop turnings	27.99
Cupola cast	40.00-42.00
Unstripped motor blocks	36.00-37.00

Philadelphia

No. 1 heavy melting	41.50†
No. 2 heavy melting	41.50†
No. 1 bundles	42.50†
No. 2 bundles	41.50†
No. 1 bushelling	42.50†
Mixed borings, turnings	36.50†
Machine shop turnings	32.50†
Short shoveling turnings	36.50†
No. 1 cupola cast	46.00-48.00††
Unstripped motor blocks	41.00††
Heavy breakable	45.00†
Machinery cast	52.00†

†Ceiling price. ††Nominal.
§Shipping point. ‡Delivered.

Pittsburgh
(Delivered)

No. 2 heavy melting	44.00†
No. 1 bundles	45.00†
No. 2 bundles	44.00†
Machine shop turnings	35.00†
Shovel turnings	39.00†
No. 1 cupola cast	48.50
Heavy breakable	45.00

†Ceiling price.

San Francisco
(Delivered)

No. 2 bundles	30.00
No. 1 cupola cast	46.00

Seattle
(F.o.b. shipping point)

No. 1 cupola cast	44.00
Heavy breakable	40.00
Unstripped motor blocks	38.00

St. Louis
(Delivered)

No. 1 cupola	41.00
Unstripped motor blocks	39.00

Youngstown
(Delivered)

No. 2 heavy melting	43.00
No. 2 bundles	43.00
Machine shop turnings	34.00

HAMILTON, ONT.
(Delivered Prices)

Heavy Melt	$35.50
No. 1 Bundles	35.50
No. 2 Bundles	35.50
Mechanical Bundles	32.00
Mixed Steel Scrap	31.50
Mixed Borings, Turnings	32.50
Rails, Remelting	35.50
Rails, Rerolling	44.50
Bushelling	30.00
Bushelling new factory:	
Prep'd	33.50
Unprep'd	31.50
Short Steel Turnings	32.50
Cast Iron Grades:	
No. 1 Machinery Cast	50.00

F.o.b. shipping point.

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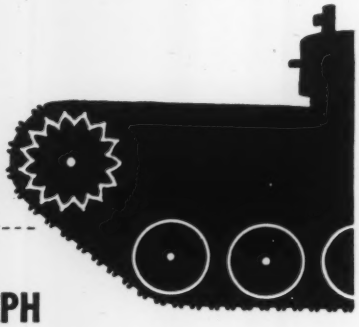
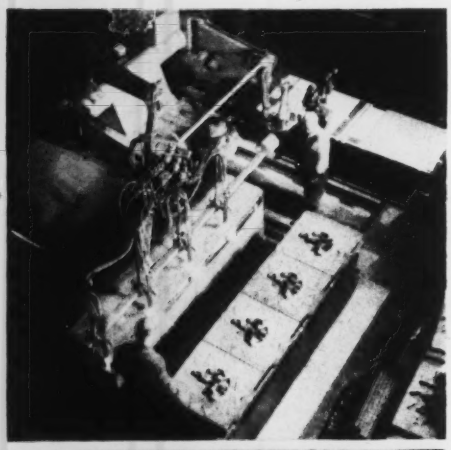
CLEVELAND, OHIO	NEW YORK, N. Y.	SAN FRANCISCO, CAL.
	SEATTLE, WASH.	

LEADERS IN IRON AND STEEL SCRAP SINCE 1889

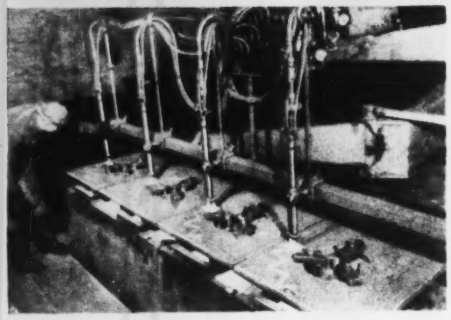
64 sprockets per day



AIRCO FOUR-TORCH TRAVOGRAPH CUTS FINISHED SPROCKETS!



The No. 50 Travograph in action. Inner circle and straight line cuts are done on rear table. The Electronic Tracer guides the arm movements automatically by following a low-cost outline drawing.



Outside pattern cut in progress on front table. Smooth, sharp-edged cuts make finish grinding unnecessary.

How to turn out tank sprockets to fit defense demands was quickly solved by the Otis Elevator Company. Installation of an electronically-guided Airco No. 50 Travograph Gas Cutting Machine in their Yonkers, New York plant was the answer.

Located next to the steel plate delivery entrance, Otis workers make quick work set-ups on their No. 50 Travograph, set a low-cost outline drawing under the Travograph's electronic tracer, and let the pantagraph arms guide the torches to work completion.

Torches are equipped with solenoid valves, operated by means of remote control switch which shuts gas off at work completion preventing contour-destroying notches . . . losing only torch gas — keeping hose lines full and instantly ready for next operation.

For your next production-run, large-parts job, where a machine-free finish is required on parts of any shape, it will pay you to consider the No. 50 Travograph. Whether you're cutting from plates, slabs, billets, or forgings, here is a precision machine that will cut identical parts on a profitable, quantity-production basis.

To obtain details about the Airco No. 50 Travograph for your operations, contact your nearest Airco office. Or just write and ask for Catalog 7, The No. 50 Travograph Gas Cutting Machine. Address: Advertising Department, 60 East 42nd Street, New York 17, New York.

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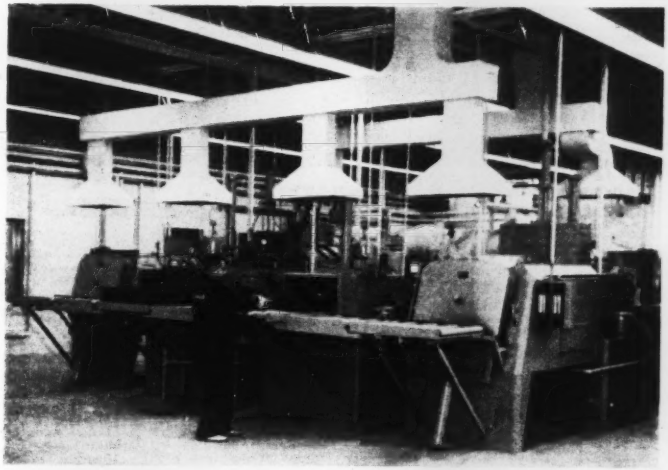
The Metal Market



Protective Gas Atmospheres Applied

At this laboratory of Ipsen Industries Inc., Rockford, Ill., emphasis is placed on the application of protective gas atmospheres for the treatment of ferrous and nonferrous materials. The lab is equipped for bright hardening, carburizing, carbo-nitriding, annealing, tempering and controlled oxidation tempering

Nonferrous metals producers enter the fall-winter production season better off than at any time in the last two years. Business should be brisk, but no boom

COMPARISON WITH so-called "normal times" are often artificial when tracing the progress of a dual economy through build-up stages. But from a standpoint of supply and demand, competition and individual decision-making, the nonferrous metals industry enters the fall-winter production season better off over-all than at any time in the past two years.

Shaping the course of business this year are factors that will differentiate it from even the comparable post-Korea periods. Labor turmoil, changing military requirements and civilian demand, international and domestic politics all carry a lot of weight. When added together, the sum points to brisk business, but no boom.

The Water's Fine—For most metal fabricators and producers, business in early September has shown up well in comparison with, and in some degree because of, a miserable summer record. Incoming orders, a time-tested index of what's ahead, have swelled respectably but there's no flood yet. Few firms are taking the plunge before sampling the water.

Much activity is only in the nature of inquiries or orders for quick delivery; seldom is a long-term commitment made. A lot of the buying comes as a result of living through much of July and August off inventories which must now be replenished.

Over the Year—In the metals that are sensitive pricewise, much business is being transacted on the basis of average price at time of delivery rather than on firm quotations. The rash of price switches in recent months has made purchasing agents wary. Of the major nonferrous metals, only domestic copper, nickel and magnesium today command the exact price they did in September, 1951.

Foreign copper now costs 8 cents a pound more, aluminum is up one cent, tin is 18.5 cents higher and cobalt commands 30 cents more than last year at this time. Metals that dropped in price since a year ago, and their decline, include: Zinc, 3 cents; lead, 1 cent; antimony, 3 cents; cadmium, 55-65 cents; silver, 6.91 cents and mercury, $10 a flask.

No Pain—Urgency in placing orders for domestic copper has partially been relieved by settlement with most major producers, though strike-like noises still emanate from unions that haven't signed. Orders for foreign copper, an excellent market indicator because of the stiff price, are holding up well in the face of talk about approaching supply - demand balance. With settlement in the mines and refineries, demands for outright price decontrol or a better break for the producers at home will be louder and more insistent.

Because of the price differential and the strange setup in copper allocations (users get 60 per cent of their requirements in domestic copper, are allowed to buy the rest abroad if they want it), an experiment in decontrol with copper as the guinea pig could be a natural. Decontrol, hinted for next spring, would bring a higher domestic price and a lower import price, with the average settling within 90 days at a point about halfway between present levels.

Some Strain—While Washington hemmed and hawed over who would get official blessing as the nation's newest aluminum producer, Anaconda came out with more details on its $45 million Montana smelter. Site agreed on was Columbia Falls rather than Kalispell, the originally- planned location. Reynolds Metals Co. will supply the new Montana reduction plant with alumina from its plant now abuilding near Corpus Christi, Tex.

Aluminum users can accumulate up to 60-day inventories during the fourth quarter, says NPA. Inventory controls on both metals were suspended entirely on copper and aluminum during the steel strike to prevent order cancellations. This suspension lapses Oct. 1.

STEEL's Metal Price Averages for Aug. 1952

(Cents per pound)

Electrolytic Copper, del. Conn.	24.500
Lead, St. Louis	15.800
Prime Western Zinc, E. St. Louis	14.067
Straits Tin, New York	121.50
Primary Aluminum Ingots, del.	19.923
Antimony, f.o.b. Laredo, Tex.	39.000
Nickel, f.o.b. refinery	56.500
Silver, New York	83.250

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 24.50c, Conn. Valley, Lake 24.62½c, delivered.

Brass Ingots: 85-5-5-5 (No. 115), 27.25c; 88-10-2 (No. 215), 40.00c; 80-10-10 (No. 305), 33.00c; No. 1 yellow (No. 405), 23.25c.

Zinc: Prime western, 14.00c; brass special 14.25c; intermediate 14.50c; East St. Louis high grade 15.35c, delivered.

Lead: Common 15.80c; chemical 15.90c; corroding 15.90c, St. Louis.

Primary Aluminum: 99% plus, ingots 20.00c; pigs 19.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.

Secondary Aluminum: Piston alloys 20.50c; No. 12 foundry alloy (No. 2 grade), 19.50c; steel deoxidizing grades notch bars granulated or shot (Grade 1, 18.80c; grade 2, 18.60c; grade 3, 18.40c; grade 4, 18.20c.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt 121.50c.

Antimony: American 99.50-99.8% and over but not meeting specifications below 39.00c; 99.8% and over, arsenic 0.05% max., other impurities 0.1% max., 39.50c, f.o.b. Laredo, Tex., for bulk shipments.

Nickel: Electrolytic cathodes 99.9%, base sizes at refinery, unpacked 56.50c; 25-lb pigs, 59.15c; "XX" nickel shot, 60.15c; "F" nickel shot or ingots, for addition to cast iron, 56.50c. Prices include import duty.

Mercury: Open market, spot, New York, $187-$190 per 76-lb flask.

Beryllium Copper: 3.75-4.25% Be, $1.56 per lb of alloy, f.o.b. Reading, Pa.

Cadmium: "Regular" straight or flat forms, $2.00 del.; special or patented shapes $2.15.

Cobalt: 97.99%, $2.40 per lb for 500 lb (kegs); $2.42 per lb for 100 lb (case); $2.47 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York 83.25c per oz.

Platinum: $90-$93 per ounce from refineries.

Palladium: $23-$24 per troy ounce.

Iridium: $200 per troy ounce.

Titanium (sponge form): $5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Ceiling prices, cents per pound, f.o.b. mill, effective July 1, 1952)

Sheet: Copper 45.52; yellow brass 40.17; commercial bronze, 95% 45.15, 90% 44.38; red brass, 85% 43.10, 80% 42.34; best quality 41.35; nickel silver, 18% 55.08; phosphor bronze grade A, 5% 64.71.

Rod: Copper, hot-rolled 41.37, cold-drawn 42.62; yellow brass free cutting 33.85; commercial bronze 95% 44.84, 90% 44.07, red brass 85% 42.79, 80% 42.03.

Seamless Tubing: Copper 45.56; yellow brass 43.18; commercial bronze, 90% 47.04, red brass, 85% 46.01.

Wire: Yellow brass 40.46; commercial bronze, 95% 45.44, 90% 44.67, red brass, 85% 43.39, 80% 42.63; best quality brass 41.64.

(Base prices, effective July 1, 1952)

Copper Wire: Bare, soft, f.o.b. eastern mills, 100,000 lb lots 32.795, 30,000 lb lots 32.92 l.c.l. 33.42. Weatherproof 100,000 lb 33.60, 30,000 lb 33.80, l.c.l. 34.35. Magnet wire del. 15,000 lb or more 38.75, l.c.l. 39.50.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders. Effective Aug. 4, 1952.)

Sheets and Circles: 2s and 3s mill finish c.l.

Thickness Range Inches	Widths or Diameters, In., Inc.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	31.6	....	....
0.135-0.096	12-48	32.1	....	....
0.095-0.077	12-48	32.8	30.6	34.9
0.076-0.061	12-48	33.4	30.8	35.1
0.060-0.048	12-48	33.7	31.0	35.4
0.047-0.038	12-48	34.1	31.3	35.7
0.037-0.030	12-48	34.5	31.7	36.3
0.029-0.024	12-48	35.1	32.0	36.8
0.023-0.019	12-36	35.7	32.7	37.5
0.018-0.017	12-36	36.4	33.3	38.4
0.016-0.015	12-36	37.3	34.0	39.5
0.014	12-24	38.3	35.0	40.8
0.013-0.012	12-24	39.3	35.7	41.7
0.011	12-24	40.3	36.8	43.3
0.010-0.0095	12-24	41.4	37.9	44.8
0.009-0.0085	12-24	42.6	39.1	46.6
0.008-0.0075	12-24	44.0	40.3	48.4
0.007	12-18	45.5	41.7	50.6
0.006	12-18	47.0	43.1	55.4

* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

Screw Machine Stock: 5000 lb and over.

Dia. (in.) or distance across flats	Round R317-T4	Hexagonal R 317-T4	Hexagonal 178-T4
0.125	54.6	....	....
0.156-0.0188	46.2	....	....
0.219-0.313	43.6	....	....
0.375	42.0	48.3	50.4
0.406	42.0	....	....
0.438	42.0	48.3	50.4
0.469	42.0	....	....
0.500	42.0	48.3	50.4
0.531	42.0	....	....
0.563	42.0	....	47.3
0.594	42.0	....	....
0.625	42.0	45.7	47.3
0.688	42.0	....	47.3
0.750-1.000	41.0	43.1	44.6
1.063	41.0	....	43.1
1.125-1.500	39.4	41.5	43.1
1.563	38.9	....	....
1.625	38.3	....	41.5
1.688-2.000	38.3	....	....

LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh). Sheets: Full rolls, 140 sq ft or more $21.00 per cwt; add 50c cwt 100 sq ft to 140 sq ft. Pipe: Full coils $21.00 per cwt. Traps and bends: List prices plus 50%.

ZINC

Sheets 23.00c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 21.25c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 22.50c; over 12-in., 22.50-23.00c.

"A" NICKEL

(Base prices f.o.b. mill)

Sheets, cold-rolled, 77.00c. Strip, cold-rolled, 83.00c. Rods and shapes, 73.00c. Plates, 75.00c. Seamless tubes, 106.00c.

MONEL

(Base prices f.o.b. mill)

Sheets, cold-rolled 60.50c. Strip, cold-rolled 63.50c. Rods and shapes, 58.50c. Plates, 59.50c. Seamless tubes, 93.50c. Shot and blocks, 53.50c.

MAGNESIUM

Extruded Rounds 12 in. long, 1.31 lb. in diameter, less than 25 lb, 55.00-62.00c; 25 to 99 lb, 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

TITANIUM

(Prices per lb 10,000 lb and over, f.o.b. mill) Sheets $15; sheared mill plate $12; strip $15; wire $10; forgings $6; hot-rolled and forged bars, $6.

DAILY PRICE RECORD

1952	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
Sept. 24	24.50	15.80	14.00	121.50	20.00	39.00	56.50	83.25
Aug. 12-30	24.50	15.80	14.00	121.50	20.00	39.00	56.50	83.25
Aug. Avg.	24.50	15.80	14.067	121.50	19.923	39.00	56.50	83.25
July Avg.	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.885
June Avg.	24.50	15.06	15.74	121.50	19.00	39.00	56.50	82.75
May Avg.	24.50	15.519	19.50	121.50	19.00	42.077	56.50	85.356
Apr. Avg.	24.50	18.723	19.50	121.50	19.00	49.077	56.50	88.00
Mar. Avg.	24.50	18.80	19.50	121.50	19.00	50.00	56.50	88.00
Feb. Avg.	24.50	18.80	19.50	121.50	19.00	50.00	56.50	88.00
Jan. Avg.	24.50	18.80	19.50	109.404	19.00	50.00	56.50	88.00
Sept. 1951 Avg.	24.50	16.80	17.50	103.00	19.00	42.00	56.50	90.16
Sept. 1947 Avg.	21.50	14.825	10.50	80.00	15.00	33.00	35.00	....

NOTE: Copper: Electrolytic, del. Conn. Valley. Lead: common grade, del. St. Louis; Zinc: prime western, E. St. Louis. Tin: Straits del. New York. Aluminum: primary ingots, 99%, del.; Antimony, bulk, f.o.b. Laredo, Tex. Nickel: electrolytic cathodes, 99.9%, base sizes at refinery unpacked. Silver: open market, New York. Prices, cents per pound, except silver, cents per ounce.

Plating Materials

Chromic Acid: 99.9% flakes, f.o.b. Philadelphia, carloads 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

Copper Anodes: Base 2000 to 5000 lb; f.o.b. shipping point; freight allowed: Flat, rolled, 38.34c; oval 37.84c.

Nickel Anodes: Rolled oval, carbonized, carloads 74.50c; 10,000 to 30,000 lb 75.50c; 3000 to 10,000 lb 76.50c; 500 to 3000 lb 77.50c; 100 to 500 lb 79.50c; under 100 lb, 82.50c; f.o.b. Cleveland.

Nickel Chloride: 36.50c in 100 lb bags; 34.50c in lots of 300 lb through 10,000 lb; 34.00c over 10,000 lb, f.o.b. Cleveland, freight allowed on 300 lb or more.

Sodium Stannate: 25 lb cans only, less than 100 lb to consumers 86.7c; 100 or 350 lb drums only, 100 to 600 lb 71.60c; 700 to 1900 lb, 69c; 2000 to 9900 lb, 67.3c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

Tin Anodes: Bar, 1000 lb and over, $1.42; 500 to 999 lb, $1.425; 200 to 499 lb, $1.43; less than 200 lb, $1.445. Freight allowed east of Mississippi and north of Ohio and Potomac.

Zinc Cyanide: 100 lb drums; less than 10 drums 54.30c, 10 or more drums, 52.30c, f.o.b. Niagara Falls, N. Y.

Stannous Sulphate: 100 lb kegs or 400 lb bbl, less than 2000 lb $1.11; more than 2000 lb, $1.09. Freight allowed east of Mississippi and north of Ohio and Potomac rivers.

Stannous Chloride (Anhydrous): In 400 lb bbl, 98.5c; 100 lb kegs 99.5c. Freight allowed.

Scrap Metals

Brass Mill Allowances

Ceiling prices in cents per pound for less than 20,000 lb, f.o.b. shipping point, effective June 26, 1951.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	21.50	21.50	20.75
Yellow Brass	19.125	18.875	17.875
Commercial Bronze			
95%	20.50	20.25	19.75
90%	20.50	20.25	19.75
Red Brass			
85%	20.25	20.00	19.375
80%	20.125	19.875	19.375
Muntz metal	18.125	17.875	17.375
Nickel silver, 10%	21.50	21.25	10.75
Phos. Bronze, 5%	25.25	25.00	24.00

Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than 40,000 lb f.o.b. point of shipment)

Group 1: No. 1 copper 19.25; No. 2 copper wire and mixed heavy 17.75; light copper 16.50; No. 1 borings 19.25; No. 2 borings 17.75; refinery brass 17.00 per lb of dry Cu content for 50 to 60 per cent material and 17.25 per lb for over 60 per cent material. Group II: No. 1 soft red brass solids 18.50; No. 1 composition borings 19.25 per lb of Cu content plus 63 cents per lb of tin content; mixed brass borings 19.25 per pound of Cu content plus 60 cents per lb of tin content; unlined red car boxes 18.25; lined red car boxes 17.25; cocks and faucets 16.00; mixed brass screens 16.00; zincy bronze solids and borings 16.25.

Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment, less than 5000 lb)

Segregated plant scrap: 2s solids, copper free 10.50; high grade borings and turnings, 8.50; No. 12 piston borings and turnings, 7.50. Mixed plant scrap: Copper-free solids, 10.00; dural type, 9.00. Obsolete scrap: Pure old cable 10.00; sheet and sheet utensils, 7.25; old castings and forgings, 7.75; clean pistons, free of struts, 7.75; pistons with struts, 5.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Lead: Heavy 12.50-12.75; battery plates 7.00-7.50; linotype and stereotype 13.50-14.00; electrotype 12.00-12.50; mixed babbitt 14.50-14.75.

Zinc: Old zinc, 6.00-6.50; new die cast scrap, 6.00-6.50; old die cast scrap, 4.75-5.00.

Sheets, Strip . . .

Sheet and Strip Prices, Page 159 & 160

Cleveland—No noticeable easing in supply of major sheet grades is anticipated before first quarter. Sellers are booked solidly through the remainder of this year with military requirements getting preference. Converters are pressing the mills for extra tonnage in an effort to make up for the loss in shipments during the strike period but are meeting with little success. As a general thing, mills are attempting to stabilize shipments through remainder of this year so that customers will get about the same average monthly shipments as in the first five months of the year. This may not be possible in all cases, depending upon the inroads of military requirements on supply. Generally, what normally would be fourth quarter tonnage of regular customers will likely not be shipped until January-February of next year. Meanwhile, except for military needs, regular first quarter tonnage is not being accepted.

Boston—High-carbon narrow cold-rolled strip capacity for fourth quarter is not fully scheduled and post-strike demand is not up to expectations. While the volume of hot-rolled against allocations to converters is heavier, the latter are striving to balance deliveries to match grades and sizes to cover last quarter orders. Cold strip bookings into next year are limited. Silicon sheets and strip have tightened materially. Some mills are soliciting orders for straight chromium stainless with deliveries down to five weeks. In carbon sheet grades, little new business is open for next quarter.

New York—Apart from some specialties, sheet producers are unable to accept additional non-rated tonnage for shipment over remainder of the year. They are, however, accepting fourth quarter CMP tickets with promises of delivery in January and February. Top priority military work for fourth quarter is being accepted for delivery in that period, with indications that producers will be caught up on military arrearages by some time in October.

Pittsburgh—Watchful waiting is the rule among sheet users in this area. Mills are sold out for the balance of the year, and there is not enough space on books to handle requirements of customers for first quarter, if military demands continue heavy.

Chicago—Inland's order books for conversion steel are filled through September, October and part of November. Conversion tonnage being produced is far below the top total of 18 per cent of over-all finished steel production which Inland hit during the height of conversion steel demand.

St. Louis—Granite City Steel Co. is trimming ingot conversion sales. Several open-hearth roofs caved in as result of the strike shutdowns and repairs have dropped ingot output to a level only slightly more than needed to maintain its own sheet and strip rolling schedules. Sheet allocations to non-rated consumers are the same in fourth quarter as in third.

Birmingham—Considerable pressure for sheets is evident in this district and it is likely additional demand would develop if consumers were at all confident of getting tonnage.

Los Angeles—Galvanized sheet supply has eased sufficiently that Columbia Steel Co. has moved low priority orders scheduled for August delivery into October books.

Wire . . .

Wire Prices, Page 161

Boston—Demand for low carbon wire is heavier on larger sizes. There are openings in fourth quarter schedules on finer sizes. Bedding and upholstery requirements for spring wire are more active. Automotive demand for specialties is up.

Birmingham—Wire products are moving in substantial volume and considerable tonnage has been booked for fourth quarter delivery. There will be some carryover tonnage at end of the year.

Steel Bars . . .

Bar Prices, Page 159

New York—The practice of accepting fourth quarter tickets on non-defense work for delivery in January and February of next year, as permitted under Washington regulations, is becoming more general among hot carbon bar producers. Until only a week or so ago not more than one or two leading producers had taken such action. Meanwhile, most are centering attention on working off high rated defense orders, on which they have been in arrears, largely because of the steel strike, with the prospect they will be current on this type of work by mid-October. Once balance is achieved, non-defense consumers stand a chance of obtaining more adequate shipments. However, the situation in hot carbon bars, especially the larger sizes, should continue tight through the remainder of this year and probably throughout first quarter of next year.

Philadelphia—Top rated military orders for hot and cold bars are being stepped up, indicating the absorption of all set-aside quotas for fourth quarter. This, along with directives and arrearages, leave non-defense consumers with little hope of obtaining additional tonnage over the remainder of this year.

Boston—Users of heavier bars, carbon and alloy, expect to be short of stock during the next 30 to 60 days after going through the strike fairly well. Gearmakers are in this category. Bar producers are filled through this year on carbon grades with little or no fourth quarter new orders included.

Pittsburgh—Supply situation on hot-rolled bars is tighter than ever, with mills trying to get caught up on set-asides and tonnage from second and third quarters. Big question is when the military demand will ease.

Cleveland—Large-size quality bars are in tightest supply, but all sizes and grades are scarce and will continue so through first quarter of 1952. This is the opinion of producers and consumers in this area. The mills are under pressure from all consuming directions and with military requirements getting preference, shipments to regular customers are being apportioned so that all will receive some tonnage through the scarcity period. Talk is heard in the market to the effect government control authorities may raise the 30-day consumer inventory limit to at least 45 days.

Export Steel Prices Advance

New York—United States Steel Export Co. increased its prices on steel products concurrently with changes in domestic quotations. The new prices, with freight included to New York, Philadelphia or Baltimore, became effective with shipments from producing mills on and after July 26 and are as follows:

Carbon Steels	**Per Net Ton**
Billets, blooms & slabs:	
Rerolling quality	$67.71
Forging quality	79.21
Tube rounds	96.21
Rails:	
Standard, 61 lb & over	89.15
Light, 60 lb & under	96.36
	Per 100 lb
Bars:	
Reinforcing	4.89
H. R. & small shapes	4.89
Cold Finished	5.485
Skelp	4.09
Stand. Structural Shapes	4.37
C. R. Sections & Bearing Piles	4.37
Plates	4.42
Floor plates	5.47
Sheet piling	5.195
Sheets:	
Hot-rolled, 18 Ga. & heavier	4.795
Cold-rolled	5.325
Galvanized, 10 Ga.	5.925
Vitrenamel, 12 Ga.	5.775
Electrical Sheets, H.R.	
Cut lengths, 22 Ga., electrical grade	8.62
Strip:	
Hot-rolled	4.265
Cold-rolled, 0.25c & under	5.66
Tight cooperage hoops	4.69
Joist bars	6.05
Tie plates	6.095
Wire Products:	
Wire rods	4.765
Bright nail wire	5.745
Black annealed wire	6.345
Galvanized plain wire	6.745
Nails, bright	6.93
Staples, bright	6.88
Barbed Wire, 4pt 3" or 6":	
Glidden	7.93
Iowa	7.93
Waukegan	7.93
	Per 80 Rod Spool
Lyman, 4pt. 5"	6.42
	Per Base Box
Tin Plate No. 107:	
Amer. Common coke, 1.25lb	10.00
Ferrostan No. 25 (0.25lb coating electrolytic	8.76
Special Coated Mfg. Ternes	9.10
Black Plate	7.85
	Discount
Pipe:	
American Stand. T. & C. Buttweld:	
2½" & 3" black	34.4
2½" & 3" Galv.	15.65
Seamless, black:	
2"	18.4
2½" & 3"	23.4
3½" & 4"	23.4
5" & 6"	28.15
Seamless, Galvanized:	
2"	Plus 0.35
2½" & 3"	2.15
3½" & 4"	4.15
5" & 6"	8.0
English Gas Tubes T. & C.	
Buttweld, 2½" & 3" Black	33.3
Galv.	17.55
Alloy Steels:	**Per Net Ton**
Billets, blooms & Slabs	$84.71
	Per 100 lb
H. R. bars	5.595
H. R. bar shapes	5.445
Plates	5.27
Structural shapes	5.245
H. R. strip	6.64
C. F. bars	6.61

High Strength Steels:	**Corten**	**Manten**
Plates	6.47	5.47
Structural shapes	6.32	5.32
C. R. sections	6.27	5.37
H. R. sheets	6.425	5.375
C. R. sheets	7.625	
H. R. bars & bar shapes	6.445	5.27

A-R Steels:	
Plates	5.57
H. R. bars	5.62
H. R. sheets	5.675

Plates . . .

Plate Prices, Page 159

Philadelphia—With operations at two district plants, Coatesville, Pa., and Claymont, Del., curtailed for repairs and improvements, stringency in plates is more pronounced. Two to three weeks probably will be required for these plants to get back into full operation.

Boston—Most orders for fourth quarter are covered by high ratings. Most fourth quarter non-military volume will go into January-February schedules. Clad material is not sold as far ahead. Chromium stainless grades can be shipped from fourth quarter openings.

New York—Except for high rated work, plate consumers are having difficulty getting tonnage. Most mills are two to three months behind on commitments and see little possibility of becoming current before year-end. This situation is reflected in restricted operations at a number of shops relying solely or in part on plates.

Los Angeles—Kaiser Steel's order carry-over on plates extends for three months. Due to huge priority tonnage requirements no non-rated customers can be accommodated during fourth quarter.

Seattle—Plate fabricators report no large projects pending. Small shops are severely handicapped by the plate shortage.

Structural Shapes . . .

Structural Shape Prices, Page 159

New York—Bridge work features the structural market. The State Department of Public Works opened bids Sept. 4 on five projects totaling 5582 tons, of which 3625 represented three projects identified with the thruway program. Assuming early placement, construction will not likely get under way until late second quarter next year. Most fabricators are well behind on commitments due to the steel strike and are unable, therefore, to promise deliveries on anything short of high rated work (such as in the A to E categories) before next spring, because of inability to work off such commitments as they have and obtain steel for still new work and get fabrication under way.

Structural bookings in July were 221,389 tons, increase of 32 per cent over the preceding month, reports the American Institute of Steel Construction. Total bookings for first seven months were 1,478,211 tons (rate of 211,173 tons per month) compared with 1,951,334 tons in the corresponding period of 1951.

July shipments were 135,860 tons, below the monthly average, but 8 per cent greater than in the previous month. Shipments for the first seven months totaled 1,496,423 tons, against 1,574,752 tons in the like period last year.

Work ahead as of July 31 stands at 2,361,027 tons, against 2,687,974 tons a year ago.

Philadelphia—Steel shortage is greatly retarding structural shop operations. Some fabricators are unable to do better than 50 to 60 per cent, and are considering themselves lucky if they don't have to curtail further before they can get inventories within reasonable balance. They have plenty of work ahead, although current demand is spotty. Bridge work is fairly well sustained and industrial demand is up a little.

Boston—Fabricated structural steel in place is close to $12 per ton higher than before the strike, with shops having tandem contracts in line with steel mill wage increases. All cost factors are up, including erection. Public work makes up the bulk of tonnage estimated.

Pittsburgh—Users of structural shapes can expect no more steel than they've been getting and possibly less. Mills are offering nothing for fourth quarter. Nor is relief offered for first quarter of 1952.

Seattle—Active demand for structurals is reported with fabricators in receipt of substantial business. Largest job pending is the Ladd Field, Alaska, power plant, involving 1500 to 1700 tons.

Tubular Goods . . .

Tubular Goods Prices, Page 163

Seattle—Cast iron pipe agencies report slow market conditions, most bid calls including alternative materials.

Scrap . . .

Scrap Prices, Page 166

Philadelphia—Steel scrap consumers are becoming more selective. Present moderate demand for steel scrap is not resulting in a drop in prices below ceiling, but is causing shipment of a uniformly better quality of material, as consumers become more selective. Sporadic shipments of foreign scrap are being received, although not involving sufficient tonnage to have any particular bearing on the market, at least not insofar as this district is concerned.

New York—Steel scrap is moving freely with consumers more exacting as to quality. Prices are unchanged at ceiling levels. Cast grades are only moderately active, although substantial buying by two leading pipe foundries has resulted in New York brokers advancing their buying prices to $43.

Buffalo—Fresh buying interest has established all scrap prices at ceiling. Uncertainty over cast prices ended when a top consumer placed business at control levels. Prior sales in cash were reported at $2 below ceiling. Large tonnages of steelmaking grades are moving at ceiling.

Pittsburgh—Scrap is moving in the Pittsburgh area slowly. Most of the movement is attributed to back orders that are just reaching delivery dates.

Chicago—Demand for cast grades of scrap remains spotty with little better than a 50-50 chance that ceiling quotations on some items will be accepted. Foundries, such as those of International Harvester and John Deere, are strike-bound and are not buying.

St. Louis—Expected pickup in steel scrap buying failed to materialize and the spurt in cast grades has died out. Foundry interest dropped off after inventories were lifted in response to a pickup in orders. In recent days, too, it has been easier to acquire pig iron. Offerings of steel grades are

ATLANTA, Ga., Alpine 4885
Morrison Drabner Steel Co., Inc.

BALTIMORE, Md., Peabody 7300
Hill-Chase Steel Company of Maryland
Asheboro, N.C.: Phone 8849
Richmond, Va.: Phone 7-4573

BEAUMONT, Tex., Phone 4-2641
Standard Brass & Mfg. Co.

CHICAGO METROPOLITAN AREA
Karhumel Steel & Aluminum Company
Evanston, Ill.: Ambassador 2-6700

CINCINNATI, Ohio, Wabash 4480, 4481
Morrison Drabner Steel Co., Inc.

CLEVELAND, Ohio
Nottingham Steel Company
Atlantic 1-5100
Copper & Brass Sales, Inc.
Endicott 1-6757

DALLAS, Tex.
Delta Metals, Inc.
Hunter 7446
Earle M. Jorgensen Co.
Riverside 1761

DAVENPORT, Iowa, Phone 3-1895
Nichols Wire & Aluminum Co.

DETROIT, Mich.
Copper & Brass Sales, Inc.
Lorain 7-3380

HONOLULU, T. H., Phone 5-2541
Permanente Cement Co.

HOUSTON, Tex.
Standard Brass & Mfg. Co.
Preston 1123
Earle M. Jorgensen Co.
Orchard 1621

INDIANAPOLIS, Ind.
F. H. Lanasenkamp Company
Riley 9311
Karhumel Steel & Aluminum Company
Franklin 5361

KANSAS CITY, Mo., Victor 1041
Industrial Metals, Inc.

LOS ANGELES, Calif.
Eureka Metal Supply Company
Mutual 7286
Earle M. Jorgensen Co.
Lucas 0281
Reliance Steel Company
Adams 6133

MILWAUKEE, Wis., Evergreen 4-6000
Karhumel Steel & Aluminum Corp.
of Wisconsin

MINNEAPOLIS, Minn.,
Karhumel Steel & Aluminum Company
Gladstone 5943, Prior 4030

NEW ORLEANS, La.
Orleans Steel Products Co., Inc.
Raymond 2116
Standard Brass & Mfg. Co.
Aud. 1353

NEW YORK METROPOLITAN AREA
A. R. Purdy Co., Inc.
Lyndhurst: Rutherford 2-8100
New York: Chelsea 3-4455
Newark: Humboldt 2-5566

OAKLAND, Calif.
Gilmore Steel & Supply Company
Glencourt 1-1680
Earle M. Jorgensen Co.
Higate 4-2030

OMAHA, Nebr., Atlantic 1830
Gate City Steel Works

ORLANDO, Fla., Phone 7124
Profile Supply Company

PHILADELPHIA, Penna., Delaware 6-5400
Hill Chase & Company, Inc.
Allentown: Allentown 28077
York: York 5790

PHOENIX, Ariz., Phone 8-5331
Arizona Hardware Co., Inc.

PITTSBURGH, Penna., Hemlock 1-5803
Follansbee Metal Warehouses

PORT ARTHUR, Tex., Phone 5-9377
Standard Brass & Mfg. Co.

PORTLAND, Ore., Tuxedo 5201
Eagle Metals Inc. of Oregon

SAN FRANCISCO, Calif., Klondike 2-0511
Gilmore Steel & Supply Company

SEATTLE, Wash., Lander 9974
Eagle Metals Company

SHREVEPORT, La., Phone 2-9483
Standard Brass & Mfg. Co.

SPOKANE, Wash., Madison 2419
Eagle Metals Company

ST. LOUIS, Mo., Lucas 0051-2-3
Industrial Metals, Inc.

WICHITA, Kans., Phone 7-1208, 7-1209
General Metals Incorporated

WORCESTER, Mass., Worcester 7-4521
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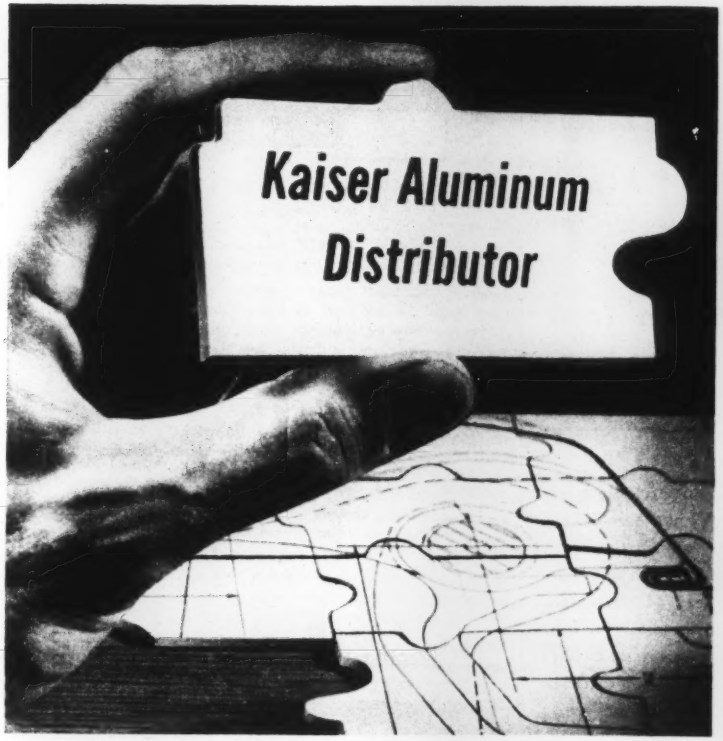

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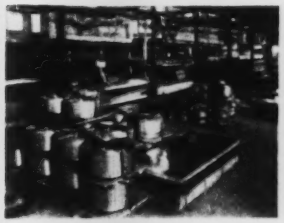

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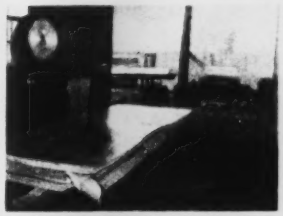

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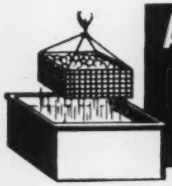

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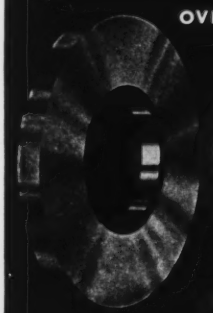

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light and shipments to dealers are tapering. Demand is sufficiently strong to hold prices steady.

Birmingham—Most wanted items in scrap are what dealers describe as "top quality" material and some specialties. Demand for melting steel is moderate with cast grades in somewhat better position.

San Francisco—Mills are comfortably fixed with scrap. There has been a little cessation in demand for cast iron grades.

Seattle—Satisfactory volume of scrap is arriving at tidewater and inventories are increasing. Ceiling prices are quoted for heavy melting but bundles which are in large supply, and cast iron grades are going $4 under ceiling.

Iron Ore . . .

Iron Ore Prices, Page 165

Cleveland—Movement of ore on the Great Lakes is at an all-time peak as shippers strive to make up the loss occasioned by the recent strike. Shipments in August exceeded 14 million tons for the first time in history, totaling 14,367,627 tons and bringing the season's accumulative total to 37,787,403 tons. In the like 1951 period, shipments amounted to 58,844,838 tons.

Despite the large shipments, stocks at furnaces and on Lake Erie docks amounted to only 27,387,800 tons on Aug. 1, a drop of 5,754,028 tons from the total a year ago. Consumption amounted to 1,544,061 tons in July, bringing the total for the first seven months to 39,274,017 tons against 51,185,226 tons in the like period a year ago. Blast furnace operations have been restored to prestrike levels.

Pig Iron . . .

Pig Iron Prices, Page 158

Washington—Higher price ceilings on pig iron were authorized by the Office of Price Stabilization effective Sept. 4 with the increase applying retroactively to all deliveries made on and after July 26.

Under Supplementary Regulation 116 to the General Ceiling Price Regulation, producers are permitted to raise by $2.50 per ton their ceilings on iron containing less than 5 per cent silicon. An increase of $3 per ton is authorized on iron containing more than 5 per cent but less than 17 per cent silicon.

The increase in pig iron prices is in line with the average $5.20 per ton boost in ceilings for carbon steel products. It was authorized on a dollars-and-cents basis rather than percentagewise in order not to disturb the historical price differentials between grades and classes of pig iron.

New York—While district consumption of pig iron is likely to undergo a pickup this month, no sharp spurt is anticipated. Gray iron foundries, in particular, see only modest improvement in demand for castings over the next few weeks. Some consumers are out of the market entirely because inventories exceed the 30-day limitation.

Buffalo—Michigan motor castings producers and ingot makers are pressing for additional pig iron. Meanwhile, smaller melters in the

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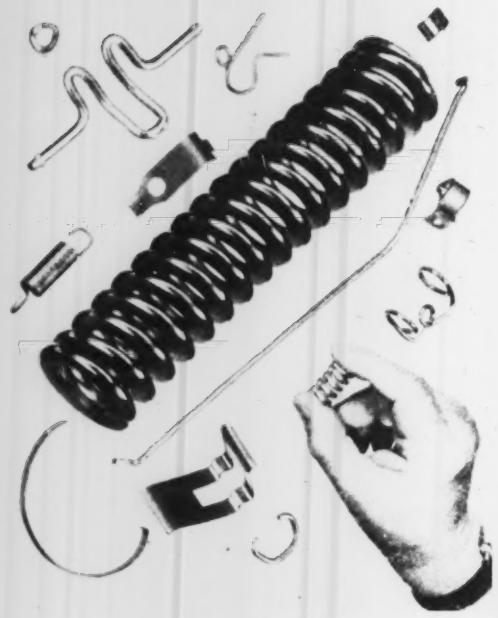

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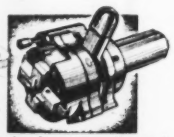

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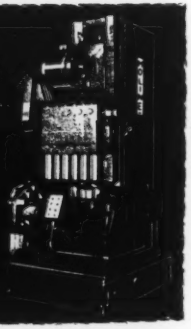

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immediate area report slower operations.

Philadelphia — Supply of domestic foundry iron appears generally adequate. Some pick-up in consumption is noted, but not enough to create real pressure. Actually some foundries are curtailing shipments, and not necessarily in cases where inventories exceed the 30-day limit.

Pittsburgh—Foundry activity continues slower than a year ago. Overall production picture is spotty; gains in jobbing castings are reported from some companies while others report comparable slumps.

Warehouse . . .

Warehouse Prices, Page 165

Philadelphia—Warehouse business this month will be up from August, distributors predict. Not only are mill receipts better, but inventories are improved.

Pittsburgh—Warehouse steel supply is gradually getting back to normal. The trickle of steel reported last week has begun to flow in more satisfying volume. While no torrent of steel of all types is reported, the supply picture at warehouses here looks brighter than it has since the strike.

Chicago—Ordering still tends to mill-sized tonnages. Shipments to warehouses are up to their quotas in nearly all cases though product mix is unbalanced. More light plates and small bars are received to the loss of heavy plates and large bars.

Canada . . .

Toronto, Ont.—Dr. H. H. Saunderson, Canada's materials co-ordinator, Department of Defense Production, commenting on a Washington dispatch in which U. S. government officials announced a plan to release more steel, copper and aluminum for construction by next April at the latest, said that bans on the use of steel for non-essential construction in Canada may be eased early next year.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

3000 tons, bridge superstructure, Agawam-Springfield, Mass., to American Bridge Division, U. S. Steel Co., Pittsburgh.

1400 tons, Bonneville Power Administration building, Portland, Oreg., to Isaacson Iron Works, Seattle.

1020 tons, field house, Northeastern University, Boston, to Bethlehem Steel Co., Bethlehem, Pa., through Volpe Construction Co., Boston, general contractor.

500 tons plus, (more as required), Ketchikan Pulp Co. plant, Ward Cove, Alaska, to Bethlehem Pacific Coast Steel Corp., Seattle.

230 tons, Pan-American hangar addition, Seattle-Tacoma airport, to Isaacson Iron Works, Seattle.

150 tons, Western Air Lines hangar addition, Seattle-Tacoma airport, to Pacific Car & Foundry Co., Seattle, the Austin Co., general contract.

125 tons, gates, contractors' equipment, Chief Joseph dam, to Pacific Car & Foundry Co., Seattle.

Unstated, steel engine house, Healy, Alaska; general contract to J. B. Warrack Co., Seattle, $163,500, by Alaska railroad, which will furnish steel.

STRUCTURAL STEEL PENDING

2100 tons, state thruway bridge work, Albany county, New York, bids opened by Department of Public Works, Sept. 4.

2100 tons, state thruway bridge work, Onandaga county, New York, bids opened Sept. 4.

1500—1700 tons, Ladd air field, Alaska, power house, bids in to U. S. engineer, Seattle.

1200 tons, bridge superstructure, Hunt's Falls, Lowell, Mass., West End Iron Works, Cambridge, Mass., low.

825 tons, state thruway bridge work, Ontario county, New York, bids opened Sept. 4.

307 tons, state bridge work, Lake Ontario parkway, section C, New York, bids opened Sept. 4.

250 tons, state bridge work, Ontario county, New York, bids opened Sept. 4.

250 tons, repairs, floor beams, bridge, roadway, South Boston, Mass.

Unstated, Ptarmagin Creek bridge, Alaska, J. J. Badraun Co., Seattle, low $90,763 to Alaska Road Commission, Juneau; bids rejected, to be readvertised, steel furnished by government.

REINFORCING BARS . . .

REINFORCING BARS PLACED

105 tons, Washington state bridge, Vashon Island, to Bethlehem Pacific Coast Steel Corp., Seattle.

100 tons, Washington state bridge, Chehalis, to Bethlehem Pacific Coast Steel Corp., Seattle.

100 tons, General Insurance Co. building, Seattle, to Northwest Steel Rolling Mills, Inc., Seattle.

REINFORCING BARS PENDING

Unstated, eight-family quarters, Elmendorf Air Base, Alaska; J. H. Pomeroy & Co., Seattle, low to U. S. engineer, $9,949,000.

PLATES . . .

PLATES PLACED

350 tons, Ward Cove, Alaska, pulp plant, for Ketchikan Pulp Co., to Chicago Bridge & Iron Co., Seattle.

PIPE . . .

CAST IRON PIPE PLACED

1200 tons, 4 to 12-in., Metropolitan District Commission, Hartford, Conn., to Warren Foundry & Pipe Co., Everett, Mass.

200 tons, 8-in., Springfield, Mass., to Warren Foundry & Pipe Co., Everett, Mass.

150 tons, 6-in., Quincy, Mass., to Warren Foundry & Pipe Co., Everett, Mass.

CAST IRON PIPE PENDING

Unstated, 3909 feet cast iron, Washington state highway project, Clark Co.; bids to Olympia Sept. 9.

RAILS, CARS . . .

LOCOMOTIVES PLACED

Colorado & Southern, ten 1500-horsepower diesel-electric switching locomotive units, to Electro-Motive Division, General Motors Corp., La Grange, Ill.

Fort Worth & Denver, eight 1500-horsepower diesel-electric switching units and two 2250-horsepower passenger locomotive units, to Electro Motive Division, General Motors Corp., La Grange, Ill.

RAILROAD CARS PLACED

Baltimore & Ohio, 12 caboose cars, to own shops in Washington, Ind.

Bangor & Aroostook, 107 forty-ton refrigerator cars, to Pacific Car & Foundry Co.

Central of Georgia, 25 seventy-ton covered hopper cars, to Pullman-Standard Car Mfg. Co., Chicago.

Southern Pacific, 2004 freight cars, to own shops at Sacramento, Calif., and Algiers, La.; list includes 1000 seventy-ton flat cars, 450 hopper bottom gondola cars, 350 tight bottom gondola cars, 100 fifty-ton pulp wood flat cars, 100 seventy-ton gondola cars, and 4 heavy duty special flat cars.

RAILROAD CARS PENDING

Alaska Railroad, 100 used and rebuilt steel hopper cars; Dulien Steel Products Co., Seattle, low to General Services Administration, Seattle, $3695 per unit.

Colorado & Southern, 70 fifty-foot and 30 sixty-five-foot mill-type gondola cars, and 20 seventy-ton covered hopper cars, pending.

Fort Worth & Denver, 250 steel box cars, pending.

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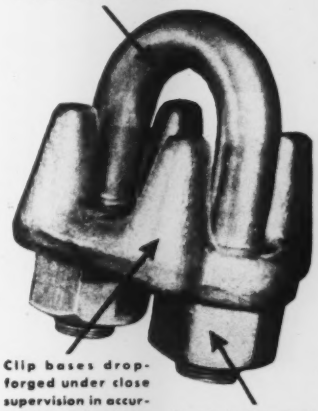

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Here and There in Metalworking . . .

CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

Foundry and Forging Plant Opened

American Brake Shoe Co., New York, officially opened its plant in Pomona, Calif. The plant will be operated by the company's Amforge Division and will replace a Los Angeles foundry which has been condemned to make way for a freeway. American Brake Shoe Co. also officially opened its new upset forging plant in Azusa, Calif.

East Coast Firm Buys Midwest Tool

H & B American Machine Co., Pawtucket, R. I., acquired Midwest Tool & Engineering Co., Indianapolis, manufacturer of aircraft parts. H & B recently sold its textile machinery plant in South Attleboro, Mass. Tentative plans have been made to move H & B's executive offices to Chicago.

Westinghouse Boosts Plant Output

Westinghouse Electric Corp., Pittsburgh, concentrated all manufacturing of tubular fluorescent lamps at its Fairmont, W. Va., plant. Production was increased by bringing machinery from the Bloomfield, N. J., headquarters of the firm's Lamp Division to the Fairmont plant.

Rolled Products Plans To Build

Rolled Products Co., subsidiary of Kingston Mfg. Co., Newmarket, N. H., is establishing a plant at West Middlesex, Pa.

Otis Co. Gets Defense Contract

Otis Co., Hamilton, Ont., received an experience order for barrels and other parts for Bofors guns. The order is a subcontract from Sorel Industries, Longuell, Que.

American Machine Forms Division

Transducer Corp., Boston, merged with its parent company, American Machine & Foundry Co., New York. Transducer becomes the Electronic Division of American Machine & Foundry.

Anaconda Expands West Coast Mill

Anaconda Wire & Cable Co., New York, is completing a $700,000 expansion program at its Orange, Calif., mill. The project is expected to increase production of copper products at that plant by 15 per cent. It involves construction of a 40,000 sq ft factory building, revamping of the electrical power system, and installation and rearrangement of $250,000 worth of mechanical equipment. The wire mill will consist of over 40 machines for producing copper wire from minute sizes up to 3 in. in diameter when stranded.

Metal Refiner Changes Name

Silverstein & Pinsof Inc., Chicago, smelter and refiner, changed its name to Sipi Metals Corp., 1720 Elston Ave., that city.

Reintjes Appoints Representative

Arches for open-hearth furnaces, soaking pit roof covers and heat treating furnaces produced by Geo. P. Reintjes Co., Kansas City, Mo., will be sold in the Birmingham and Atlanta areas by R. D. Osgood, associated with Harry G. Mouat, Birmingham.

Westcott Improves Service in West

Westcott Chuck Co., Oneida, N. Y., established warehouse stocks at 320 S. 66th St., Houston; 390 Bayshore Blvd., San Francisco; 1827 S. Hope St., Los Angeles. The Houston stock is under supervision of the company's representatives, John T. Everett & Co.; the California stocks, Hobelmann & Co. Inc.

Smart-Turner Machine To Expand

Smart-Turner Machine Co., Ltd., Hamilton, Ont., will erect an addition to its plant. It will have 5000 square feet of floor space.

Fruehauf Opens Branch Factories

Fruehauf Trailer Co., Detroit, opened branch factories in Wallingford, Conn., and Indianapolis. Raymond W. Cook is manager of the Indianapolis branch; Paul J. Motto, Wallingford branch.

Container Firm Builds in South

Vulcan Steel Container Co., an affiliate of Vulcan Stamping & Mfg. Co., Chicago, is constructing a plant at 3315 N. 35th Ave., Birmingham. The company will manufacture many varieties of metal containers for chemicals, paints, petroleum, food and other products.

Philco Division Moves Headquarters

Government & Industrial Division, Philco Corp., Philadelphia, established its headquarters at 4700 Wissahickon Ave., that city.

Concentrates on Advanced Design

An innovation in the field of industrial design service to be included in the new building of Sundberg-Ferar, industrial designers, now nearing

Ni-Carbing*

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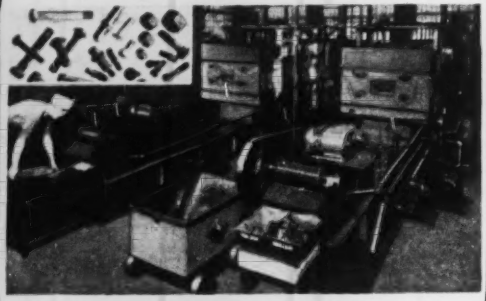

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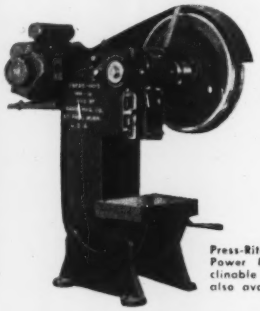

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completion in Royal Oak, Mich., is a separate section which is being set up as an advanced design department. Staff designers in this department will be assigned to work exclusively on products which will reach the market several years hence.

Youngstown Alloy Casting Expands

Youngstown Alloy Casting Corp., Youngstown, is spending $100,000 on its third plant expansion in less than two years. The firm produces high alloy steel castings, mainly for major steel firms. These are mainly bar mill and pipe mill guides. The expansion includes a 5400 sq ft plant addition and a two-ton electric furnace. The firm is beginning to produce some high-carbon high-chrome cast blanks for the automobile industry.

Canadian Engine Plant Opened

The largest aircraft engine plant in Canada was opened at Malton, Ont., on Sept. 29. It was built by the Canadian government for Avro Canada Ltd. and has a floor area of 700,000 sq ft.

Rinshed-Mason Buys Canadian Firm

Rinshed-Mason Co., Detroit, manufacturer of automotive and industrial finishes, purchased Standard Paint & Varnish Co. Ltd., Windsor, Ont. Officers of Standard will be Frederick G. Weed, president; Joseph H. Parsons, secretary; and George Monteith, treasurer.

Ford Building Service Parts Depot

Service parts depot and office building are being erected by Ford Division, Ford Motor Co., on North avenue, near Mannheim road, Chicago. The project is expected to be completed in about a year.

Little Opens St. Louis Branch

Arthur D. Little Inc., Cambridge, Mass., opened a branch office in St. Louis, under supervision of John R. Kirkpatrick. Earl P. Stevenson is president of this consulting industrial research and engineering firm.

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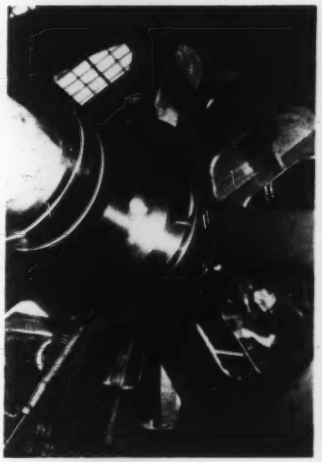

Easy Drilling

A high-speed precision drill easily bores holes through the 3½-inch-thick flange of this generator shaft at General Electric Co.'s Schenectady, N. Y., works. The spider, which measures 12½ feet in diameter, weighs 9 tons; the shaft, 16 tons. They are components of a 110-ton rotor which will rotate inside a 16,667 kva hydro-generator

Raybestos-Manhattan Opens Branch

Raybestos-Manhattan Inc., Passaic, N. J., opened a warehouse in Denver, Colo. Elton T. Fair Jr. is in charge of the warehouse.

Royal Metal Mfg. Appoints Agent

Royal Metal Mfg. Co., Chicago, appointed Harold C. Rowland as its representative in Maryland, Delaware and the city of Washington. Royal makes metal seating equipment, case goods and shelving.

Raytheon Opens New Office Building

Raytheon Mfg. Co., Waltham, Mass., officially opened its new office building at 3076 W. 117th St., that city.

Hoffman Laboratories Expands

Hoffman Laboratories Inc., division of Hoffman Radio Corp., Los Angeles, is constructing a building at 3761 So. Hill St., that city, for manufacture of electronic equipment. Completion is scheduled by December.

SDPA Sponsors New Production Pool

A new production pool, composed of a large company which plans to seek prime defense contracts and several small companies which hope to perform under subcontracts, was organized under the supervision of Small Defense Plants Administration. Known as General Tire Production

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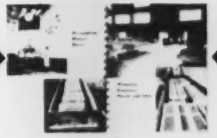

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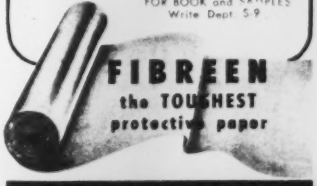

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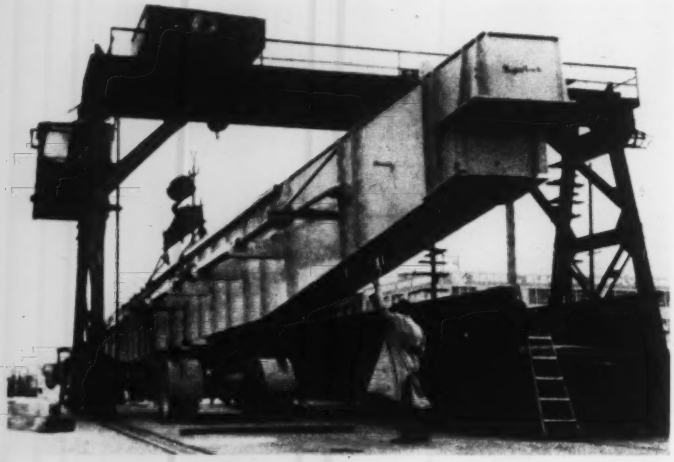

All Aboard for Los Angeles

This 15-ton scrap-yard crane, built for Bethlehem Pacific Coast Steel Corp.'s Los Angeles plant by Ederer Engineering Co., Seattle, gets aboard the train—five whole cars of it ready for the trip south. The huge crane will handle a 75-inch elctromagnet, said to be one of the largest to be put into service on the West Coast. The scrap will feed three electric furnaces at the plant.

Pool Inc., it is composed of General Tire & Rubber Co., Akron, O.; Ectro Inc., Delaware, O.; Jackson Electric & Mfg. Co., Akron; McCaskey Register Co., Alliance, O.; and Sterling Mfg. Co., Cleveland. It will attempt to obtain contracts in the precision electrical field.

Blaw-Knox Reorganizes Branch Office

Chemical Plants Division, Blaw-Knox Co., Pittsburgh, expanded and reorganized its Tulsa, Okla., office into a complete operating unit to be known as the Western Headquarters. F. Drake Parker was named manager.

Warner Electric Licenses Firm

Warner Electric Brake & Clutch Co., Beloit, Wis., appointed Westool Ltd., Durham, England, as its sole licensed agent to manufacture the Warner line of industrial electric brakes and clutches in the British Isles.

Eldorado Mining Transfers Division

Eldorado Mining & Refining Ltd. transferred its Commercial Products Division to Atomic Energy of Canada Ltd., P. O. Box 93, Ottawa, Canada.

Cleco Appoints Distributors

Cleco Division, Reed Roller Bit Co., Houston, appointed Harry P. Leu Inc., Orlando, Fla.; Ace Equipment & Supply Co. Inc., Hillside, Ill., as distributors for its line of air tools and accessories.

Pastushin Buys Factory Building

To provide additional facilities for production of jettisonable fuel tanks being manufactured for the U. S. Air Force, Pastushin Aviation Corp., Los Angeles, acquired a factory building at 5300 W. Century Blvd., that city. The addition is the fourth plant for the aircraft firm. The company is increasing its facilities and personnel in an extensive program to expand production of aircraft components. The firm specializes in production of various aircraft components.

Willys To Build Plant in Brazil

Willys-Overland Motors Inc., Toledo, will establish an assembly plant at Sao Paulo, Brazil, for production of jeeps, station wagons, trucks and passenger cars.

Quaker Rubber Opens Branch

A branch warehouse and sales office serving the Pacific Northwest was established at 2360 N.W. Quimby St., Portland, Oreg., by Quaker Rubber Corp., a division of H. K. Porter Co. Inc., Philadelphia. The branch is supervised by Milton M. Clark, district manager.

Shawinigan Chemicals Expanding

Stainless Steel Division, Shawinigan Chemicals Ltd., Montreal, will extend its foundry at Shawinigan Falls, Que., by about 30 per cent. Cost of construction and equipment will be about $250,000. The company's two new subsidiaries, St. Maurice Chemicals at Varennes and B. A. Shawinigan at Montreal-East, are building plants in those cities. The company also may erect plants for the production of chemicals in the sterling area.

Tyler Machine Forms Machine Shop

Tyler Machine Co., Culver City, Calif., formed a machine shop at 3424 Westley Ave. to do sheet metal fabrication, aircraft stretch press and assembly work. David J. Levinson is general manager.

Tri-Angle Tool Opens New Facilities

Tri-Angle Tool & Machine Co. opened its new offices and plant at 8623 Dice Rd., Los Nietos, Calif.

Carborundum Metals To Build Plant

A plant to produce zirconium and hafnium sponge metals is to be built in Newstead, N. Y., by Carborundum Metals Co. Inc., a recently formed subsidiary of Carborundum Co., Niagara Falls, N. Y.

Baltimore Machine Shop Expands

L. V. Hare Jr., who operates a machine shop at 3515 Pleasant Pl., Baltimore, is erecting a 6000-square foot plant at 1609 Union Ave., that city. The shop specializes in can manufacturing machinery.

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Hoppers, Twin, All-Steel, 50-Ton, Cross Dump
Hoppers, All-Steel, 70-Ton, Cross Dump
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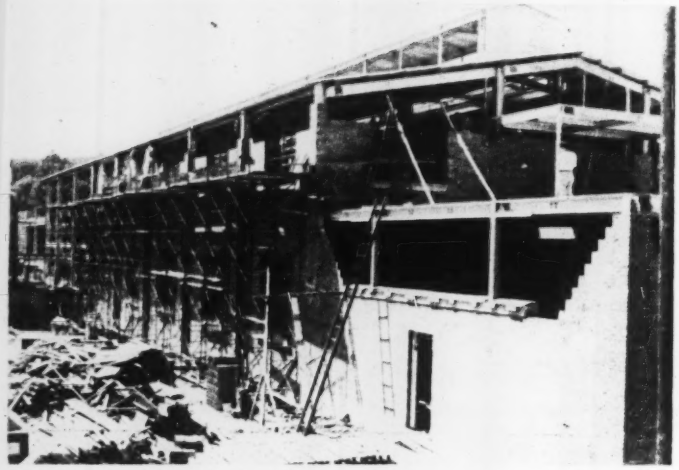

Chemical Plant Takes Shape

Glass-lined and stainless steel equipment will be used throughout this J. T. Baker Chemical Co. plant, Phillipsburg, N. J. Costing about $1 million, the plant will more than double the firm's output of high-purity inorganic chemicals

Polonium Offered for Purchase

Isotopes Division, Atomic Energy Commission, Oak Ridge, Tenn., is offering reactor-produced radio-active polonium-210 for research activities. Polonium is the first reactor-produced radioisotope to be sold which emits alpha particles. It can be used also as a source of high energy neutrons. The element is needed for physical and biological investigations. It also could be used in well logging; for ionization sources; in luminous phosphors; in static elimination devices; and for other industrial purposes.

Taylor Instrument To Build Plant

Taylor Instrument Companies of Canada Ltd. plans to erect a $450,000 plant in Toronto, Ont. Contracts for construction have been let. The plant will have a floor area of 40,000 square feet.

Naugatuck Chemical Expands

Naugatuck Chemical Division, United States Rubber Co., New York, is doubling the capacity of its facilities for production of Vibrin polyester resins at its headquarters plant in Naugatuck, Conn.

Marchant Enters Electronics Field

Marchant Calculating Machines Co., Emeryville, Calif., entered the electronics field through acquisition of a controlling interest in Physical Research Laboratories Inc., Pasadena, Calif. The latter is a developer and maker of electronic computers and components. Physical Research has been renamed Marchant Research Inc. and its activities have been moved to Emeryville.

Talon Builds Zipper Plant in South

Talon Inc., Meadville, Pa., is constructing a slide fastener manufacturing plant at Cleveland, Ga. The plant should be ready for operation by February, 1953.

Stewart-Warner Invests Abroad

Stewart-Warner Corp., Chicago, purchased a substantial stock interest in Uni-Gun Lubricating Equipment Ltd., London, England, a company which manufactures a line of products similar to Stewart-Warner's Alemite lubrication equipment line.

Allis-Chalmers Names Agents

Allis-Chalmers Mfg. Co., Milwaukee, named Industrial Electric Service Co., Crescent City, Calif., as its distributor for its motors, controls and transformers and Sweetwater Electric Co., Sweetwater, Tex., as distributor for its motors and transformers in their respective territories.

Wolverine Improves Tube Packaging

A new method of packaging "U-Bend" tubes for heat exchangers and condensers was announced by Wolverine Tube Division, Calumet & Hecla Consolidated Copper Co., Detroit. The package is an expendable wooden pallet. Complete sets of tubes for condenser installation can be shipped in one pallet.

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"KRANE KAR* MANEUVERABILITY IS VALUABLE," SAYS KROPP FORGE

Handles Loads at Either Side as well as in Front

"EXTREME MANEUVERABILITY IS VALUABLE for getting in and out between closely piled stacks of bars and billets . . . and for moving bars and billets through low shop doors," *says a letter from Kropp Forge.*

KRANE KAR is used in the Storage Yard for unloading, storage, and for handling heavy forge hammer repair parts, loaded tote boxes, miscellaneous work. *Quoting further,* "Single billets of 15,000 pounds are handled easily. Up to a quarter-million pounds of steel are moved in an 8-hour day with average fuel consumption cost of $1.50."

Only ***KRANE KAR*** *can perform such difficult Materials-Handling operations ECONOMICALLY . . . . 1—transports full rated load without stabilizers; 2—tops and lowers boom by power; 3—load is lowered by power; 4—automatic crane braking; 5—unobstructed vision all around; 6—short turning radius; 7—gas-powered* ***KRANE KAR*** works 24 hours a day!

Ask for BULL. #89, entitled "How to Cut Materials-Handling Costs."

1½, 2½, 5 and 10 ton cap.

The original Swing-Boom Mobile Crane with Front-Wheel Drive and Rear-Wheel Steer.

SILENT HOIST & CRANE CO. 849 63rd ST., BROOKLYN 20, N.Y.

Tie faster, tighter, safer with one machine and Gerrard Steel Strapping

MODEL G MACHINE

A single Gerrard machine (there are several sizes to fit a variety of jobs) tensions, ties and cuts Gerrard Steel Strapping quickly. It leaves a strong, tight, securely tied, steel strap around box, carton, crate and pallet, whether rectangular, circular or odd in shape. Gerrard Strapping complies fully with Army-Navy specifications JAN-P-106A, JAN-P-107 and JAN-P-108 for overseas packing.

Call a Gerrard engineer for the full story about the Gerrard Method of Strapping. The full story includes the reasons why Gerrard Round Steel Strapping costs about 40% less than any other metal reinforcement, and recommendations for the correct machine and size of strapping to do your tying job best.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL COMPANY
4745 South Richmond St., Chicago 32, Ill.

USS

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UNITED STATES STEEL

NOW you can

BRIGHT-ANNEAL STAINLESS

on a continuous production basis, with

The

SARGEANT & WILBUR

Controlled Atmosphere

CONVEYOR FURNACE

PARTS MADE OF STAINLESS can be

BRIGHT-ANNEALED,

BRIGHT-HARDENED, or

BRIGHT-BRAZED without oxidation . . . they come out scale-free, bright, and clean. No pickling required, no tumbling, no sand blasting.

With our special S. & W. alloy for bright-brazing stainless, the color matches the metal, resists dulling, and the joint is practically invisible. Gold and silver parts are soldered in the same continuous-production furnace with equal success.

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180 Weeden St.
PAWTUCKET, R. I.

Send your illustrated folder "How to BRIGHT-ANNEAL STAINLESS in the S. & W. Conveyor Furnace."

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Company

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Every small worm gear unit is built to precision standards—as outstanding in quality and performance as larger size Clevelands. Illustrated above are the 10 AT (left) and 00 D (right) speed reducers.

Enjoy the benefits of worm gear drives in smaller CLEVELAND speed reducers

WHEN you want a quiet, powerful, dependable drive for a small machine, choose a Cleveland Worm Gear Speed Reducer.

As built by Cleveland, the worm gear reducer is a drive of many advantages:

1. It is compact and inherently quiet, transmitting power with smooth, uninterrupted torque flow.
2. Its right-angled design saves valuable space.
3. It has a minimum of moving parts.
4. Shock load resistance and other factors of safety are high.
5. Rate of wear of case hardened steel worm on nickel-bronze gear is very low, insuring long life.

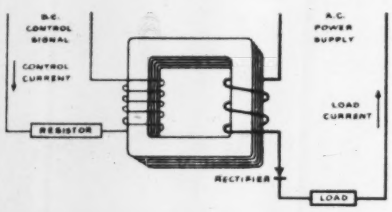
Write for Bulletin 114F which illustrates and gives engineering data on smaller size Clevelands—many now available for immediate delivery. The Cleveland Worm and Gear Company, 3270 E. 80th St., Cleveland 4, O.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.

CLEVELAND

Speed Reducers

THE APPLICATION OF MAGNETIC AMPLIFIERS TO STEEL MILL CONTROL CIRCUITS



THE MAGNETIC AMPLIFIER

The magnetic amplifier as a motor control component has taken the electrical world by storm. Here is a unit that is simple in construction, that has no moving parts to wear out or get out of order . . . yet when properly designed and constructed and when properly engineered into a control scheme is capable of some of the most amazing control functions. Its response is swift, measured in a fraction of a second. It is accurate. It is immune to vibration and shock. Because of numerous installations Cutler-Hammer engineers have the knowledge and experience to properly apply the magnetic amplifier to control circuits of every kind.

Cutler-Hammer's practical knowledge of this newly useful component assures correct and efficient solution of your control problems.

With a background experience gained by more than 50 years' intimate contact with the control problems of the Steel Industry, Cutler-Hammer engineers now bring to the Industry the knowledge and practical benefits of recent developments of the magnetic amplifier. The simple electrical and mechanical construction, the absence of moving parts, the tremendous versatility, the immunity to shocks and vibration, and the dependability of the magnetic amplifier recommend it to any steel mill man seeking higher production, better performance and more uniform operation in a wide variety of mill applications. If you have a problem involving:

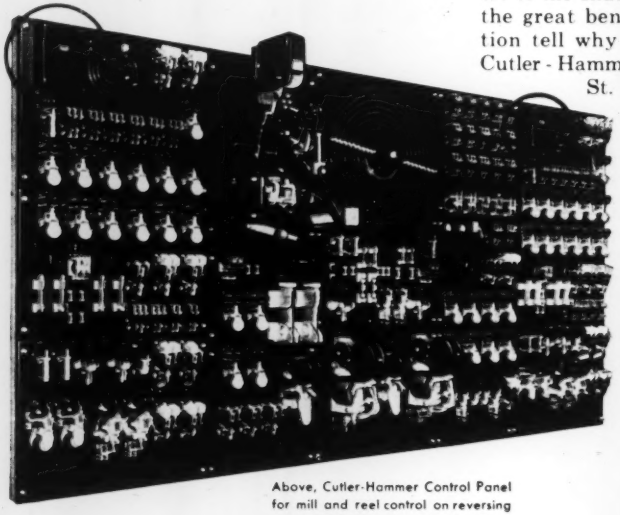
Tension control	Acceleration
Voltage regulation	Positioning
Speed control	or any combination of these,

bring it to Cutler-Hammer.

The adaptability which the magnetic amplifier has in its performance characteristics and the need for skilled engineering experience of the subject are factors that suggest its application by men *competent* to do so.

Versatility and dependability explain the great interest of the Industry in this new method of control; and the great benefits derived from its proper application tell why experienced mill men are coming to Cutler-Hammer. CUTLER-HAMMER, Inc., 1211 St. Paul Avenue, Milwaukee 1, Wisconsin.

Associate: Canadian Cutler-Hammer, Ltd., Toronto, Ontario.



Above, Cutler-Hammer Control Panel for mill and reel control on reversing strip mill, utilizing magnetic amplifiers.

CUTLER-HAMMER
MOTOR CONTROL
C-H

See other typical Cutler-Hammer applications of magnetic amplifiers at Iron & Steel Exposition

Booths 46-47-48 and 49.